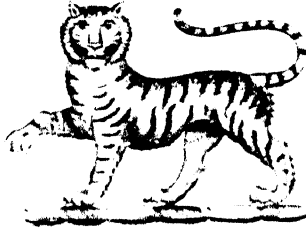


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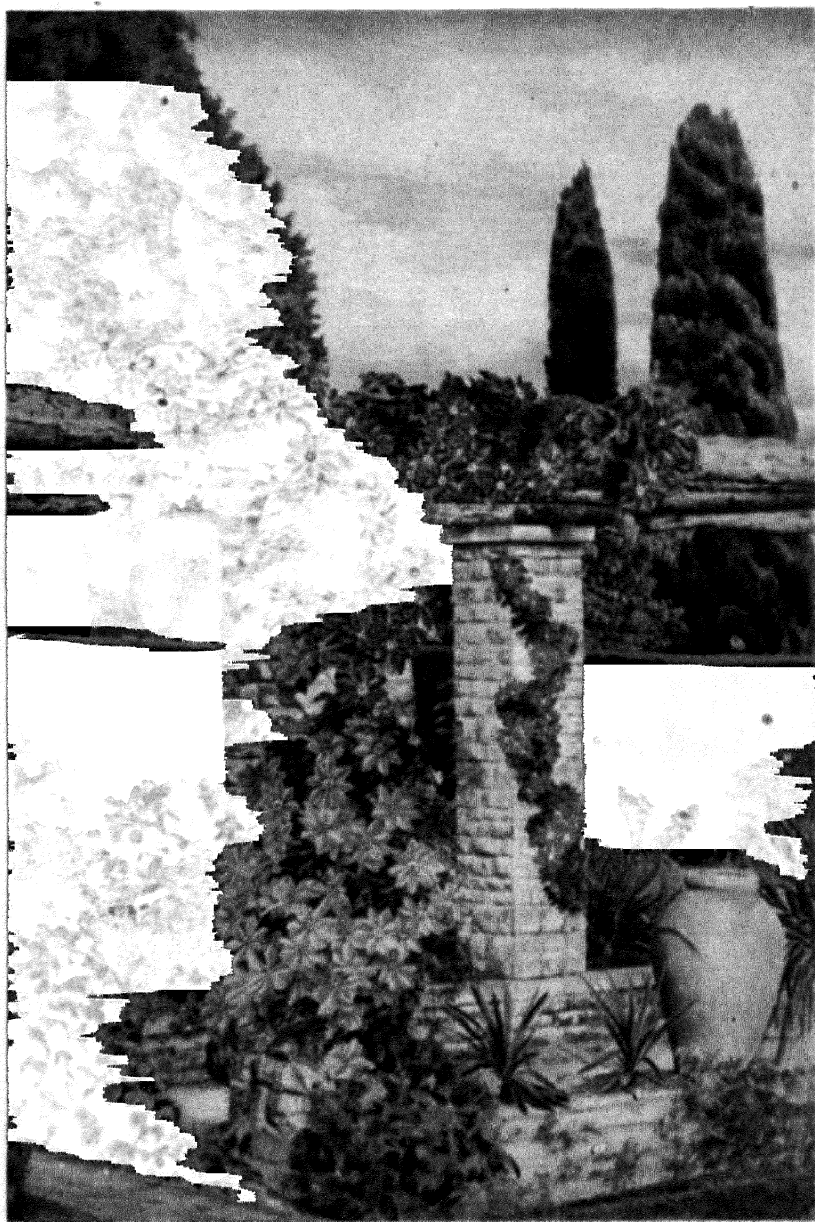




TO READERS

Please make use of the comprehensive  
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[Malby

CLEMATIS: A Glory of the Garden.

M.M.S.

[Frontispiece

C. H. MIDDLETON

8 *Plates in Colour*  
16 *Plates in Photogravure*



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*Second Impression* 1949

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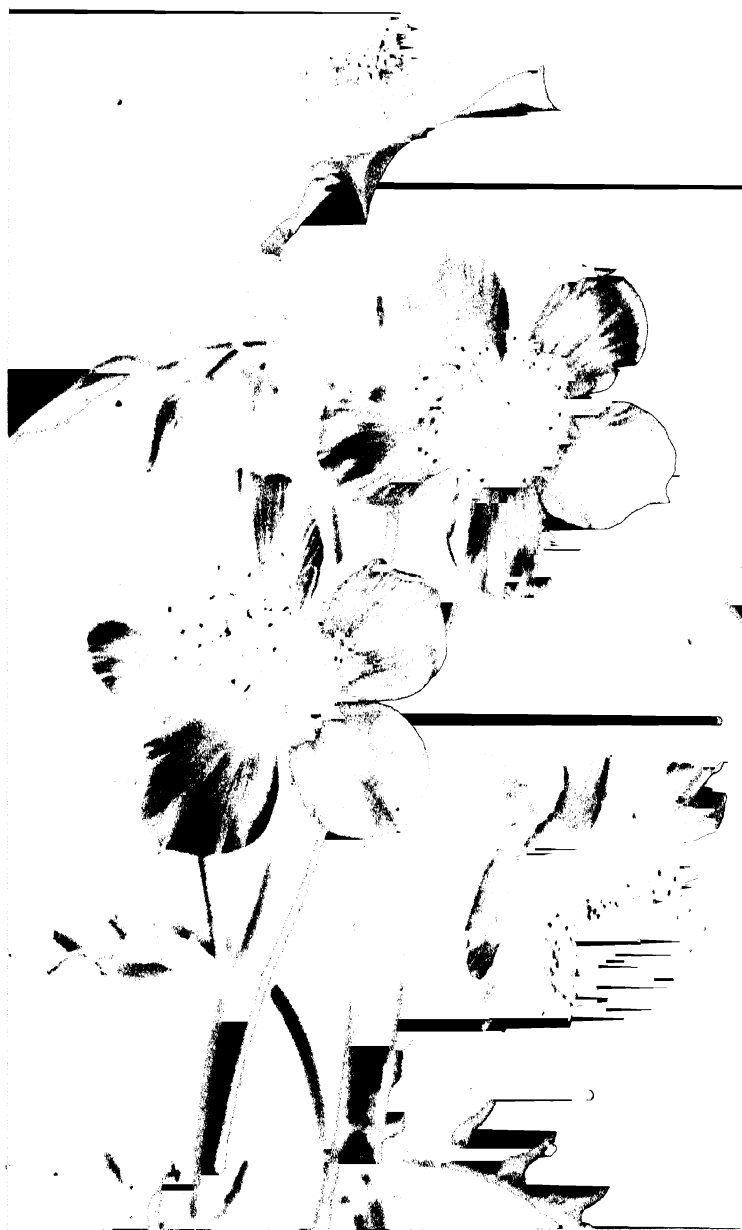
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LONDON.





**BARTONIA AUREA (MENTZELIA LINDLEYI).**

[C. W. Tea,

[Facing page

## COLOUR PLATES

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## INTRODUCTION

THIS is not a gardening book in the usually accepted sense ; it is more in the nature of an *information bureau*, designed to provide information *quickly as and when wanted*, and to save as much as possible of that valuable gardening commodity—time.

A very wide study of modern gardening books reveals an astonishing lack of easily accessible information of the kind that gardeners—both amateur and professional—are continually in need of.

For instance, at one time or another almost every gardener will want to know the answer to such questions as :—

How many plants are required to fill a bed of a certain area when set out, say, 6 inches apart in rows 8 inches apart ? What is the best fertilizer for scorched grass and when should it be applied ? What is the best dressing to kill weeds on the lawn ? How and when should we apply lime and manures ? What are the best plants for various purposes and for growing in different situations and in different soils—plants for edging ; plants for the dry wall ; for the rock garden ; for the water garden ; plants of different colour, height and season of bloom for filling some vacant place in the border ; trees and shrubs for screens and windbreaks, or to provide colour in autumn and winter ; plants that will grow in the shade and under the drip of trees ; plants for, may be, sandy, chalky, gravelly or peaty soils ; plants for dry soils and for wet ground ; plants for the town garden and for growing by the seaside ?

How and when, in the open or under glass, should we sow the seeds of the various flowers and vegetables we need ; and by what other means can we propagate our plants ?

What are the best kinds of fruit to grow, both as regards variety and form, to suit our tastes and the garden space available ?

These are but a few examples of the things that every gardener is sure to want to turn up from time to time ; and it is to such questions as these that we have tried to give clear and concise answers, largely by means of lists and in tabular form.

C. H. MIDDLETON.

*"This rule of gardening ne'er forget,  
To sow dry, and set wet."*

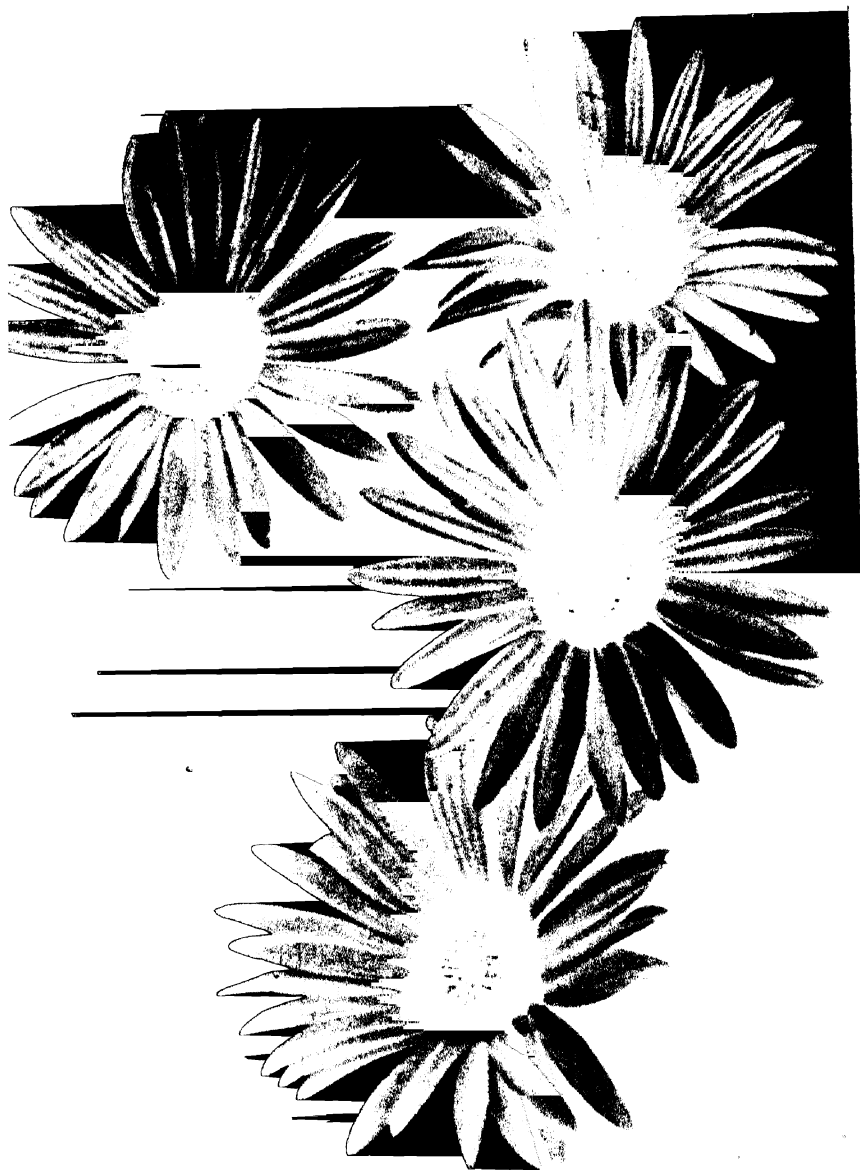
# PLANT NAMES

Alphabetical List of Common English Names showing the Botanical Equivalents—

<i>Common Name.</i>	<i>Botanical Name.</i>	<i>Common Name.</i>	<i>Botanical Name.</i>
Aaron's Beard	Hypericum	Blackberry	Rubus
Aaron's Rod	Verbascum	Blackthorn	Prunus
Aconite, Winter	Eranthis	Bladder Nut	Staphylea
Adam's Needle	Yucca	" Senna	Colutea
Adder's Tongue	Erythronium	Blanket Flower	Gaillardia
Adder's Violet	Goodyera	Blazing Star	Liatris
African Corn Flag	Antholyza	Bleeding Heart	Decentra
African Corn Lily	Ixia	Bloodroot	Sanguinaria
African Hemp	Sparmannia	Bluebell	Scilla
African Lily	Agapanthus	Blueberry	Vaccinium
Alder	Alnus	Blue Bottle	Centaurea
Alkanet	Anchusa	" Cupidone	Catananche
All-beal	Valeriana	" Marguerite	Agathaea
Allspice	Calycanthus	Bluet	Centaurea
Almond	Prunus Amygdalis	Bog Bean	Menyanthes
Aloe, American	Agave	" Pimpernel	Anagallis
Alpine Comfrey	Onosma	" Violet	Pinguicula
" Rose	Rhododendron	Bottle Brush Plant	Callistemon
Alum Root	Heuchera	Box	Buxus
American Cowslip	Dodecatheon	Bramble	Rubus
American Laurel	Kalmia	Briar	Rosa
American Wood Lily	Trillium	Bridal Wreath	Francoa
Angel's Tears	Narcissus	Brompton Stock	Matthiola
Angelica Tree	Aralia	Broom	Cytisus & Genista
Apple of Peru	Nieandra	Buckeye	Æsculus
Arbor Vitæ	Thuja	Buckthorn	Rhamnus
" Chilian	Libocedrus	Bugbane or Bugwort	Cimicifuga
Arrow Head	Sagittaria	Bugloss	Lichium
Ash	Fraxinus	Bull Bay	Magnolia
Aspen	Populus tremula	Bulrush	Scirpus & Typha
Aster, Cape	Chariis	Burnet	Pteridium
" China	Callistephus	Burning Bush	Æthionema
Attnasco Lily	Zephyranthes	Burnt Candytuft	Schizanthus
Autumn Crocus	Colchicum	Butterfly Flower	Calochortus
Avens	Geum	" Tulip	Pinguicula
Baboon-root	Habiana	Butter-wort	Kalmia
Bachelor's Buttons	Ranunculus	Calico Bush	Calycanthus
Balm of Giliad	Abies	Californian Allspice	Eschscholzia
Balsam	Impatiens	" Poppy	Romneya
Bamboo	Arundinaria, Arundo, Bambusa & Phyllostachys	" Tree Poppy	Lychnis & Silene
Band Plant	Vinca	Campion	Tropæolum
Barberry	Berberis	Canary Creeper	Iberis
Barrenwort	Epimedium	Candytuft	Campanula
Bastard Box	Polygala	Canterbury Bells	Chariis
Bear Berry	Vaccinium	Cape Aster	Lobelia
" Bind	Calystegia	Cardinal Flower	Dianthus
Bear's Breach	Acanthus	Carnation	Smilax
Bear's Ear	Auricula & Cortusa	Carrión Flower	Ricinus
Bear's Foot	Helleborus	Caster-oil Plant	Lychnis & Silene
Beard Tongue	Pentstemon	Catchfly	Nepeta
Beech	Fagus	Catmint	Agave
Bees' Balm	Monarda	Century Plant	Gypsophila
Belladonna Lily	Amaryllis	Chalk Plant	Anthemis
Bellflower	Campanula	Chamomile	Heliotropium
Bellwort	Campanula	Cherry Pie	Cerastium
Bergamot	Monarda	Chick-weed	Araucaria
Billberry	Vaccinium	Chili Pine	Campanula
Bindweed	Convolvulus	Chimney Bellflower	Aster
Birch	Betula	China Aster	Platycodon
Bird's Foot Trefoll	Lotus	Chinese Bellflower	Hibiscus
Bitter Cress	Cardamine	" Rose	Helleborus
Bitter Sweet	Celastrus and Solanum	Christmas Rose	Cuphea
		Cigar Flower	Potentilla
		Cinquefoil	Celosia
		Cockscomb	

# PLANT NAMES

<i>Common Name.</i>	<i>Botanical Name.</i>	<i>Common Name.</i>	<i>Botanical Name.</i>
Collin's Flower	Collinsia	Foam Flower	Maella
Columbine	Aquilegia	Forget-me-not	Myosotis
Cone-flower	Echinacea and Rudbeckia	Foxglove	Digitalis
Coral Barberry	Berberidopsis	Fraxinella	Dictamnus
" Berried Duckweed	Nertera	French Honeysuckle	Hedysarum
Cornel	Cornus	" Marigold	Tagetes
Cornelian Cherry	Cornus	Fringe Flower	Schizanthus
Corn Flag	Gladiolus	Fritillary	Fritillaria
" Lily	Ixia	Fumitory	Corydalis & Dicentra
Cornflower	Centaurea	Furze	Genista and Ulex
Cow Parsnip	Hieracium	Galingale	Cyperus
Cowslip	Frimula	Garland Flower	Daphne
" American	Dodecatheon	Germander	Teucrium
Crab Apple	Pyrus	Globe Amaranth	Goniphrena
Crab's Claw	Stratiotes	" Daisy	Globularia
Crane's Bill	Geranium	" Flower	Trollius
Creeping Forget-me-not	Omphalodes	Glory of the Snow	Chionodoxa
Creeping Jenny	Lysimachia	" Pea	Chanthus
Cretan Mullein	Celsia	Goat's Beard	Astilbe, Spiraea
Crimson Leaf	Shortia	" Rue	Galega
" Satin-flower	Brevoortia	Golden Bell Tree	Forsythia
Crowfoot	Ranunculus	" Chain or Rain	Laburnum
Crown Daisy	Chrysanthemum	" Rod	Solidago
" Imperial	Fritillaria	Gorse	Genista and Ulex
Crown Vetch	Coronilla	Grape Hyacinth	Muscari
Crowned Campion	Lychnis	Grass of Parnassus	Parnassia
Cuckoo Flower	Cardamine	Greek Valerian	Polemonium
Cup and Saucer Plant	Cobaea	Groomwell	Lithospermum
Cup Flower	Nierembergia	Groundsel	Senecio
Cupidone	Campanche	Guelder Rose	Viburnum
Currant	Ribes	Guernsey Lily	Nerine
Cushion Pink	Armeria & Silene	Gum Tree	Eucalyptus
Cypress	Cupressus	Gynarium	Cortaderia
Daffodil Garlic	Allium	Harebell	Campanula
Daisy	Bellis	Hawthorn	Crataegus
" Bush	Olearia	Heartsease	Viola and Pansy
Dame's Violet	Rocket	Heath and Heather	Calluna and Erica
David's Harp	Polygonatum	Hedge Mustard	Erysimum
Day Flower	Commelina	Heliotrope	Heliotropium
" Lily	Hemerocallis	Hemlock Fir and Spruce	Tsuga
Devil-in-a-Bush	Nigella (seed pods)	Herb Lily	Alstroemeria
Dog's Tooth Violet	Erythronium	Heron's Bill	Erodium
Dogwood	Cornus	Holly	Ilex
Double Sneezewort	Achillea	Hollyhock	Althaea
Dragon's Head	Dracocephalum	Honesty	Lunaria
" Mouth	Epidendrum	Honeysuckle	Lonicera
Dusty Miller	Senecio	Hop	Humulus
Dutchman's Pipe	Aristolochia	Hornbeam	Carpinus
Dyer's Greenwood	Genista	Horse Chestnut	Aesculus
Edelweiss	Leontopodium	Horse Mint	Monarda
Elder	Sambucus	Houseleek	Sempervivum
Elm	Ulmus	Humming Bird's	
Equestrian Star	Hippeastrum	Trumpet	Zauschneria
Evening Primrose	Oenothera	Huntsman's Horn	Sarracenia
" Star	Cooperia	Ice Plant	Mesembryanthemum
Everlasting Flowers	Ammobium, Helichysum, Rhodanthe, Waitsia and Xeranthemum	Iceland Poppy	Papaver
" Pea	Lathyrus	Immortelles	Helichrysium and Xeranthemum
Fair Maids of France	Ranunculus	Incense Cedar	Libocedrus
Fir	Abies	Incense Plant	Humea
Fire Pink	Silene	Indian Corn	Zea
Flag	Iris	" Shot	Canna
Flame Flower	Kniphofia	India-rubber Plant	Ficus
Flax	Linum	Irish Heath	Daboecia
Fleabane	Erigeron & Inula	Ivory Thistle	Eryngium
Floss-flower	Ageratum	Ivy	Hedera
		Ixia Lily	Ixiolirion
		Jack in Prison	Nigella



ARCTOTIS GRANDIS.

[R. A. Malby.





## PLANT NAMES

Common Name.	Botanical Name.	Common Name.	Botanical Name.
Jacobaea Lily	Hippeastrum	Milk-wort	Polygala
Jacob's Ladder	Polemonium	Mimosa	Acacia
Japanese Aralia	Fatsia	Missouri Hyacinth	Brodiaea
Jasmine Plant	Bouvardia	Mitre Flower	Mitrisia
Jerusalem Cross	Lychnis	Mock Orange	Philadelphus
Jerusalem Star	Cerastium	Money Wort	Lysimachia
Jew's Mallow	Kerria	Monkey Flower	Mimulus
Job's Tears	Coix	" Puzzle	Araucaria
Judas Tree	Cercis	Monkshood	Aconitum
June Berry	Amelanchier	Montbretia	Tritonia
Kafir Lily	Schizostylis	Moon Daisy	Chrysanthemum
King's Flower	Eucornis	" Flower	Iponoea
" Spear	Eremurus	Moortwort	Soldanella
Knopweed	Centaurea	Morning Glory	Iponoea
Knot-wort	Polygonum	Moss Campion	Silene
Labrador Tea	Ledum	Mother of Thousands	Saxifraga
Lace Flower	Trachymene	Mountain Sweet	Ceanothus
Ladies' Tresses	Spiranthes	Mouse Ear	Cerastium
Lady's Love	Artemisia	Mugwort	Artemisia
Lady's Slipper	Cypripedium	Musk	Mimulus
" Stock	Cardamine	Musk Mallow	Malva
Larch	Larix	Myrtle Grass	Acorus
Larkspur	Delphinium	Nasturtium	Tropeolum
Lavender	Nephrodium	Nettle Geranium	Coleus
Laurel, Spotted	Aucuba	New Zealand Burr	Acacia
Laurustinus	Viburnum Tinus	" " Daisy Bush	Olearia laevis
Lavender Cotton	Santolina	Night-scented Stock	Hesperis
Leadwort	Ceratostigma and Plumbago	Nut Grass	Cyperus
Leopard Rose	Helleborus	Old Man	Artemisia
Leonard's Bane	Doronicum and Senecio	Orange Ball Tree	Buddleia
Lilac	Syringa	Ox-eye	Euphthalium
Lily of the Incas	Alstroemeria	" Daisy	Chrysanthemum
" " Valley	Convallaria	Pampas Grass	Cortaderia
" " " Bush	Ferns	Passion Flower	Passiflora
Lily Tree	Magnolia	Pearl-wort	Sagina
Lime Tree	Lilium	Pennywort	Cotyledon
Ling or Heather	Calluna	Periwinkle	Vinca
Linseed Oil Plant	Linum	Peruvian Daffodil	Ismene
Lobster's Claw	Chianthus	" Lily	Alstroemeria
London Pride	Saxifraga	Pheasant's Eye	Adonis
Loosestrife	Lysimachia	Pimpernel	Anagallis
" Purple	Lythrum	Pin-cushion Flower	Scabiosa
Love-in-a-Mist	Nigella	Pinks	Dianthus
Love-lies-Bleeding	Amarantus	Itcher Plant	Nepenthes
Lungwort	Mertensia	Plantain Lily	Hosta (Funkia)
Madwort	Alvium	Plum	Frunus
Maidenhair Fern	Adiantum	Plume Poppy	Bocconia
Maize	Zea	Polyanthus	Primula
Mallow	Lavatera	Poor Man's Weather	" Glass
Maple	Acer	" Glass	Anagallis
Marigold	Calendula	Poppy	Papaver
Mariposa Lily	Calochortus	Pot Marigold	Calendula
Marjoram	Origanum	Prickly Heath	Fernettia
Marsh Mallow	Malva	" Thrift	Acanthidion
Marsh Marigold	Caltha	Primrose	Primula
Marvel of Peru	Mirabilis	Prince of Wales' Feathers	Celosia
Mask Flower	Monarda	Prince's Feather	Amarantus
May	Crataegus	Privet	Lagustrum
Meadow Rue	Thalictrum	Prophet Flower	Arnebia
" Saffron	Colchicum	Purple Loosestrife	Lythrum
" Sweet	Spiraea	Purslane	Portulaca and Calandrinia
Mediterranean Cross	Morisia	Pyrenean Clary	Horminum
Mexican Aster	Cosmos	Quaking Grass	Briza
" Orange Blossom	Choisya	Queen Lily	Phadranassa
Michaelmas Daisy	Aster & Starwort	Ragged Robin	Lychnis
Mignonette	Rosella	Ragwort	Senecio
Milfoil	Achillea	Red Hot Poket	Kniphofia
Milk Vetch	Astragalus	Rest Harrow	Ononis
		Rock Cross	Arabis

1691

## PLANT NAMES

<i>Common Name.</i>	<i>Botanical Name.</i>	<i>Common Name.</i>	<i>Botanical Name.</i>
Rock Cress, Purple	Aubrietia	Sunflower	Helianthus
Rock Jasmine	Androsace	Sun Rose	Helianthemum
" Purslane	Calandrinia	Swan River Daisy	Brachycome
" Rose	Cistus	Sweet Bay	Laurus
Rocket	Hesperis	" Chestnut	Castanea
Rockfoil	Saxifraga	" Pea	Lathyrus
Rockspray	Cotoneaster	" Sultan	Centaurea
Rose Acacia	Robinia	" William	Dianthus
" Campion	Lychnis	Sword Lily	Gladialis
" Mallow	Hibiscus	Sycamore	Acer
" of Heaven	Lychnis	Thorn	Crataegus
" of Sharon	Hypericum	Thrift	Armeria
Rosette Mullein	Ramondia	Tickseed	Coreopsis
St. Bernard's Lily	Anthericum	Tick Trefoil	Desmodium
St. Bruno's Lily	Paradisia	Tidy Tips	Layia
St. John's Wort	Hypericum	Tiger Iris	Iridia
Sandwort	Arenaria	Toad Flax	Lunaria
Satin Flower	Sisyrinchium	Tobacco Plant	Nicotiana
Scarborough Lily	Vallota	Traveller's Joy	Clematis
Scorpion Senna	Coronilla	Tree of Heaven	Ailanthus
Sea Daffodil	Pancratium	Trefoil	Trifolium
" Lavender	Statice	Trinity Flower	Trillium
Sedge	Carex	Trumpet Flower	Bignonia
Self-heal	Drumella	Tuberose	Pollanthes
Shallot	Gaultheria	Tufted Harebell	Wahlenbergia
Shamrock	Trifolium	Valerian	Centranthus
Silver Bell Tree	Halesia	Vervain	Verbena
Slipper Flower	Calceolaria	Virginia Creeper	Vitis (Ampelopsis)
Smoke Bush	Rhus	Virginia Stock	Malcomia
Snapdragon	Antirrhinum	Wall Cress	Arabis
Snoezeweed	Helennum	Wallflower	Cheiranthus
Snowball Tree	Viburnum	Wall Rue	Asplenium
Snowdrop	Galanthus	Water Arum	Peltandra
Snowflake	Leucojum	" Lily	Nuphar, Nym-
Snow-in-Summer	Cerastium		phæa and Pelt-
Snow-on-the-Mountain	Arabis		tandra
Soapwort	Saponaria	" Plantain	Alisma and Pont-
Solomon's Seal	Polygonatum		deria
Southernwood	Artemisia	" Soldier	Stratokes
Sowbread	Cyclamen	Wigwag	Diervilla
Spanish Broom	Spartium	Welsh Poppy	Meconopsis
Spear Flower	Ardisia	Whitlow Grass	Draba
Speedwell	Veronica	Wild Hyacinth	Scilla
Spiderwort	Tradescantia	Willow	Salix
Spleenwort	Asplenium	" Herb	Epilobium
Spring Meadow Saffron	Bulbocodium	Windflower	Anemone
Spruce	Picea	Winter Aconite	Eranthis
Spurge	Euphorbia	" Green	Gaultheria
Squill	Scilla	" Heliotrope	Petasites
Star-flower	Trientalis	" Sweet	Chimonanthus
Star of Bethlehem	Ornithogalum	Witch Hazel	Hamamelis
" " the Veldt	Dimorphotheca	Wolf's Bane	Aconitum
Stock	Matthiola	Woodbine	Lonicera
Stonecrop	Sedum	Wood Lily	Trillium
Stork's Bill	Belargotium	Woodruff	Asperula
Strawberry Tree	Arbutus	Wood Sorrel	Oxalis
Striped Squill	Puschkinia	Wormwood	Artemisia
Stud Flower	Helonias	Yarrow	Achillea
Sumach	Rhus	Yew	Taxus
Summer Cypress	Kochia	Zebra-striped Grass	Eulalia
" Starwort	Erimus	Zephyr Flower	Zephyranthes
Sundew	Drosera		



11/10/71

CALENDULA "Golden King" (Pot Marigold)

Facing page 14



## LATIN NAMES AND THEIR MEANING

NOTE.—Where applicable, adjectives are shown in their masculine form *us*; they are, of course, according to the words they qualify, used in their feminine form, *a*, and their neuter form, *um*. Similarly the ending *is* will frequently be found to be displaced by the letter *e*.

<i>acaulis</i>	..	..	having no stalks or apparently none.
<i>acerifolius</i>	..	..	having leaves like those of the Maple.
<i>aculeatus</i>	..	..	with stings or prickles.
<i>adiantifolius</i>	..	..	having leaves like those of the Maiden-hair.
<i>adsurgens</i>	..	..	growing erect; upright in form.
<i>æthiopicus</i>	..	..	from Africa.
<i>affinis</i>	..	..	closely related to—similar.
<i>agglomeratus</i>	..	..	bunched together closely.
<i>albus</i>	..	..	white.
<i>alpinus</i>	..	..	from the Alps.
<i>alternifolius</i>	..	..	having the leaves one above the other on opposite sides.
<i>amabilis</i>	• ..	..	beautiful.
<i>angularis</i>	..	..	having corners.
<i>angustifolius</i>	..	..	having narrow leaves.
<i>appendiculatus</i>	..	..	with small appendages.
<i>aquatica</i>	..	..	found by or in water.
<i>aquilegifolius</i>	..	..	having leaves like those of the Aquilegia.
<i>aquilinus</i>	..	..	pertaining to an eagle.
<i>aristatus</i>	..	..	bearded as an ear of grain.
<i>asiaticus</i>	..	..	from Asia.
<i>asperus</i>	..	..	uneven, rough.
<i>aureus</i>	..	..	golden.
<i>barbarus</i>	..	..	strange, foreign.
<i>barbatus</i>	..	..	having tufts of long hair.
<i>bicolor</i>	..	..	having two colours.
<i>bicornis</i>	..	..	having two horns.
<i>biflorus</i>	..	..	with two flowers.
<i>bracteatus</i>	..	..	having modified leaves at the base of the stem.
<i>breviscapus</i>	..	..	having short stalks.

## LATIN NAMES AND THEIR MEANING

<i>bulbiferus</i>	.. ..	bearing bulbs.
<i>bullatus</i>	.. ..	studded, bossed.
<i>cæsius</i>	.. ..	bluish-grey.
<i>calcareus</i>	.. ..	pertaining to lime.
<i>cambricus</i>	.. ..	from Wales.
<i>candidissimus</i>	.. ..	white.
<i>capitatus</i>	.. ..	having heads.
<i>cardinalis</i>	.. ..	deep red.
<i>caudatus</i>	.. ..	tail-like.
<i>chrysophyllus</i>	.. ..	with golden leaves.
<i>citrinus</i>	.. ..	lemon-coloured.
<i>citriodorus</i>	.. ..	lemon-scented.
<i>coccineus</i>	.. ..	scarlet.
<i>cæruleus</i>	.. ..	blue.
<i>communis</i>	.. ..	common, or growing together.
<i>compactus</i>	.. ..	strongly-built, compact.
<i>cordatus</i>	.. ..	heart-shaped (usually of foliage).
<i>corymbosus</i>	.. ..	clustered.
<i>crispus</i>	.. ..	curled, wrinkled.
<i>cristatus</i>	.. ..	crested.
<i>cuneatus</i>	.. ..	wedge-shaped.
<i>decussatus</i>	.. ..	divided cross-wise, like an X.
<i>densiflorus</i>	.. ..	having flowers crowded thickly to gether.
<i>dentatus</i>	.. ..	having toothed leaves.
<i>denticulatus</i>	.. ..	with tooth-like projections.
<i>dipterocarpum</i>	.. ..	having two wing-like appendages.
<i>elator</i>	.. ..	higher, more raised.
<i>elegans</i>	.. ..	choice, fine.
<i>exaltatus</i>	.. ..	raised, made high.
<i>excelsus</i>	.. ..	high, lofty.
<i>eximius</i>	.. ..	rare.
<i>falcatus</i>	.. ..	curved, scythe-shaped.
<i>farinosus</i>	.. ..	covered with mealy powder.
<i>fistulosus</i>	.. ..	tubular or hollow.
<i>flavus</i>	.. ..	yellow.
<i>fætidus</i>	.. ..	with a disagreeable smell.
<i>formosus</i>	.. ..	handsome, beautiful.
<i>fragilis</i>	.. ..	brittle.
<i>fragrans</i>	.. ..	scented, sweet.
<i>fruticosus</i>	.. ..	shrubby in form.
<i>furcatus</i>	.. ..	forked.
<i>glabrus</i>	.. ..	not hairy, smooth.

## ATIN NAMES AND THEIR MEANING

	..	..	bluish-grey.
	..	..	globular, round.
s	..	..	forming a ball.
	..	..	sticky.
	..	..	thin, slender.
us	..	..	fine, big-flowered.
s	..	..	with roughened surface.
	..	..	armed as with a spear.
	..	..	having long, stout hairs.
	..	..	hard, rough, hairy.
	..	..	small, low-growing.
s	..	..	overlapping one another, like the scales of a fish or the slates of a roof.
	..	..	from India.
	..	..	whole, undivided.
us	..	..	medium, intermediate.
	..	..	divided into narrow lobes.
	..	..	smooth.
us	..	..	woolly.
	..	..	having broad leaves.
	..	..	having lobed leaves.
	..	..	pale yellow, fallow.
	..	..	yellow.
llus	..	..	large-leaved.
i	..	..	spotted.
s	..	..	pertaining to the sea.
	..	..	in the middle, common, middling.
llus	..	..	small-leaved.
	..	..	downy, soft.
	..	..	pertaining to mountains.
s	..	..	musky.
atus	..	..	with a sharp edge or point.
	..	..	found on walls.
	..	..	dwarf-growing.
	..	..	pertaining to woods.
	..	..	belonging to the woods.
	..	..	black.
s	..	..	becoming black.
	..	..	black.
	..	..	bright, shining.
	..	..	growing amidst snow.



## LATIN NAMES AND THEIR MEANING

<i>nudicaulis</i>	..	having naked stems.
<i>nummularius</i>	..	pertaining to a coin.
<i>nutans</i>	..	nodding in form.
<i>obtusis</i>	..	blunt.
<i>occidentalis</i>	..	western, from the west.
<i>octopetalus</i>	..	with eight petals.
<i>officinalis</i>	..	useful to mankind.
<i>orientalis</i>	..	from the east.
<i>ornatus</i>	..	ornamental, decorative.
<i>ovatus</i>	..	egg-shaped (usually of leaves).
<i>pallidus</i>	..	pale.
<i>palustris</i>	..	belonging to a marsh.
<i>patens</i>	..	open, exposed.
<i>pedatus</i>	..	divided like a bird's claws.
<i>peltatus</i>	..	shaped like a shield.
<i>persicifolius</i>	..	having peach-like leaves.
<i>pilosus</i>	..	covered with hair.
<i>platyphyllus</i>	..	with flat, broad leaves.
<i>plicatus</i>	..	folded fan-wise.
<i>plumosus</i>	..	feathery.
<i>præcox</i>	..	early flowering.
<i>pratensis</i>	..	pertaining to meadowland.
<i>procumbens</i>	..	prostrate, on the ground.
<i>prostratus</i>	..	prostrate, lying on the ground.
<i>pubescens</i>	..	furred over with short, soft hair.
<i>pulchellus</i>	..	attractive, pretty.
<i>pulverulentus</i>	..	dusted over with fine powder.
<i>pumilus</i>	..	diminutive, dwarf.
<i>purpureus</i>	..	purple.
<i>pyrenaicus</i>	..	from the Pyrenees.
<i>racemosus</i>	..	bunched, clustering.
<i>radicans</i>	..	rooting as it grows.
<i>ramosus</i>	..	branching.
<i>reflexus</i>	..	turned back.
<i>regalis</i>	..	royal, kingly.
<i>repens, reptans</i>	..	creeping.
<i>reticulatus</i>	..	very finely-netted.
<i>rigidus</i>	..	stiff.
<i>rivalis, rivularis</i>	..	pertaining to streams, etc.
<i>rotundifolius</i>	..	having round-shaped leaves.
<i>rugosus</i>	..	shrivelled, wrinkled.

## LATIN NAMES AND THEIR MEANING

<i>rupestris</i>	..	pertaining to rocks.
<i>rusticanus</i>	..	pertaining to the countryside.
<i>sagittifolius</i>	..	having arrow-shaped leaves.
<i>salicifolius</i>	..	having leaves like those of the willow.
<i>sanguineus</i>	..	blood-red.
<i>sativus</i>	..	cultivated.
<i>saxatilis</i>	..	pertaining to the rocks.
<i>scoparius</i>	..	with thin branches, as a broom.
<i>semperflorens</i>	..	continually flowering.
<i>sempervirens</i>	..	continually green.
<i>sensibilis</i>	..	having the faculty of feeling or sensing.
<i>septentrionalis</i>	..	northern.
<i>serpyllifolius</i>	..	with foliage like that of thyme.
<i>setaceus</i>	..	covered with thick hairs.
<i>sinensis</i>	..	pertaining to China.
<i>speciosus</i>	..	brilliant, handsome, showy.
<i>spectabilis</i>	..	remarkable, notable.
<i>spinosus</i>	..	spiny, prickly.
<i>spinosissimus</i>	..	very prickly indeed.
<i>squarrosus</i>	..	scurfy.
<i>stellatus</i>	..	like a star.
<i>striatus</i>	..	marked with streaks.
<i>superbus</i>	..	magnificent, splendid.
<i>sylvestris</i>	..	belonging to the woods; uncultivated.
<i>tenuis</i>	..	slender in form.
<i>tricolor</i>	..	having three colours.
<i>uliginosis</i>	..	moist.
<i>vernalis</i>	..	pertaining to Spring.
<i>versicolor</i>	..	of many or changing colours.
<i>viscosus</i>	..	sticky.
<i>vulgaris</i>	..	common.
<i>viridis</i>	..	green.

## LAYING-OUT THE GARDEN

In his selection of a site for the garden, and in his adaptation of that site, the wise gardener may follow certain authentic rules; but in the actual designing and stocking of that site he must take into account all kinds of eventualities that no former prescription can possibly provide for. He will stand out against the seductions of any prevailing fashion, and will refuse to follow it merely because it is the fashion. Ask one man to design a garden, and he will draw up a plan on paper, or dogmatically expound his principles, with little or no regard for the situation in which the garden is to be made. He will treat the problem as though site and soil and atmosphere and situation were of so little account that their consideration would be superfluous. One might just as well expect to design a successful costume without knowing the sex, age, proportions, or type of the wearer.

Obviously the actual design and embellishment of a garden must of necessity be governed by the character and formation of the ground at the gardener's disposal. The whole art of simple gardening consists really in adapting one's ideas to the local conditions rather than in the not uncommon practice of trying to force an unsuitable garden to conform to certain preconceived notions and schemes. In other words, think out a scheme which will make the most of the natural facilities of the site. For example, the actual laying-out of the garden determines to a great extent the amount of labour necessary to keep it neat and flourishing.

In the case of a very small garden it is sometimes a mistaken enterprise to devote much time or space to vegetables. As a rule, they can be bought for less than it costs the amateur to grow them.

**Using of Natural Features.** Nothing is to be more deprecated than the habit of mere paper planning, that is, of drawing up a hard and fast disposition of the garden without practical reference to the site itself, and of forcing extremes of fashion upon an uncongenial locality. From all of which it must not be understood that any particular style of gardening—the formal, the natural, and so on—is condemned as such. Certain situations demand a formal, even as others call for a freer, treatment. The character of the site and its architectural and rural surroundings should give the general lines upon which the plan should be formed.



CALANDRINIA GRANDIFLORA.

[C. W. Teager.

M.M.S.

B★

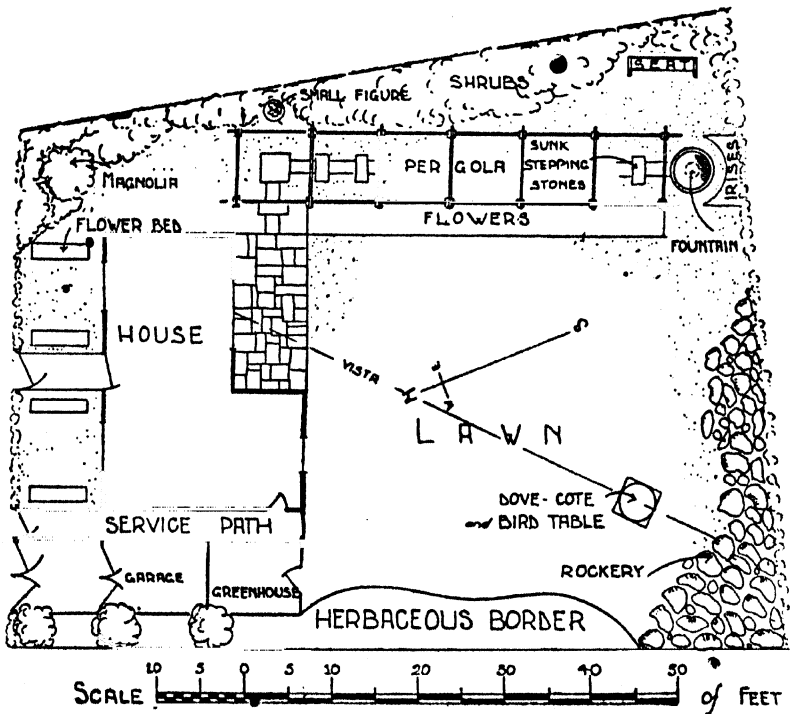


## LAYING-OUT THE GARDEN

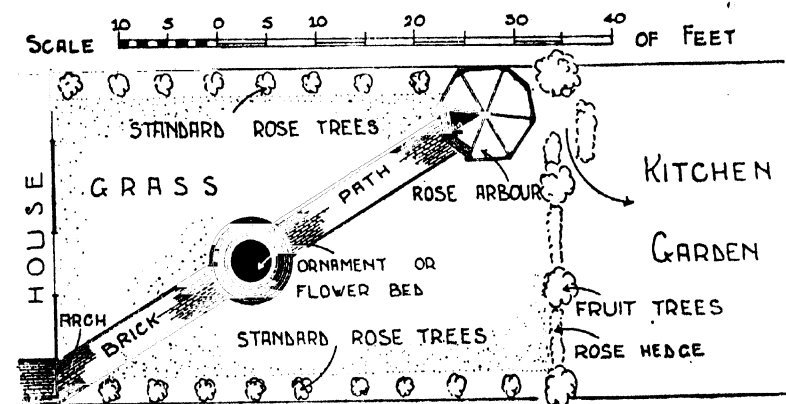
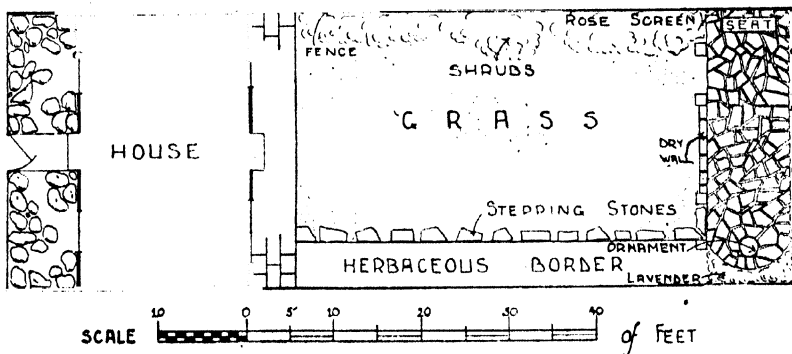
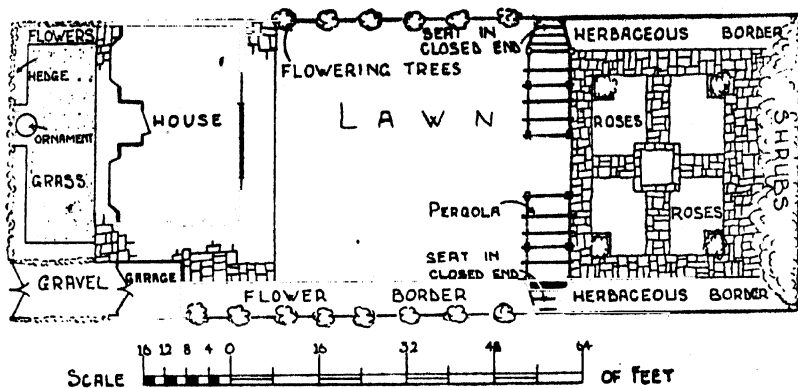
Many people insist upon making a clean sweep of everything with which nature has already endowed the proposed site. Such drastic treatment is almost always a great mistake. In the case of such natural features as trees, clumps of shrubs, etc., thought should be given to decide how far these original tenants can be utilised in the gardener's scheme.

The actual spade work should not be embarked upon until the plan of the garden is complete in every important detail, its boundaries fenced, and the walks and leading features decided upon. For it is here, in the early stage of carrying out a plan in practice, that the proper methods must be understood and followed.

## SOME GARDEN PLANS

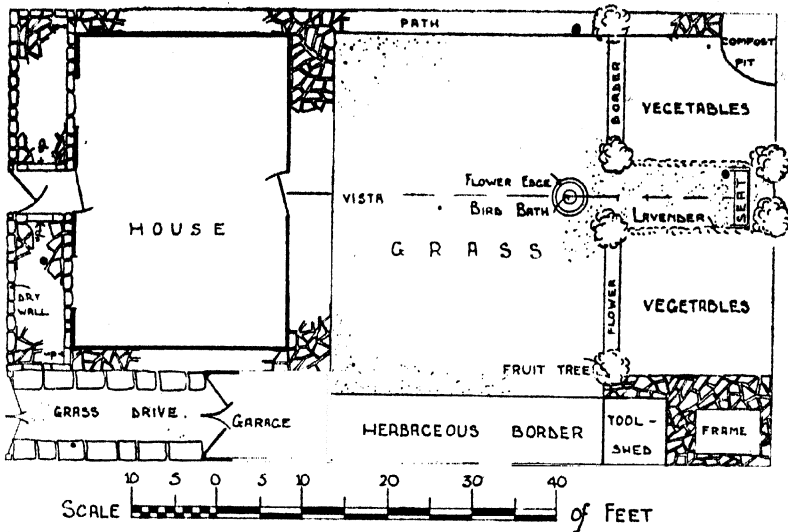


LAY-OUT SUITABLE FOR A PLOT OF IRREGULAR SHAPE.



SOME MORE ATTRACTIVE PLANS.

## LAYING-OUT THE GARDEN



▲ SMALL GARDEN WITH A PORTION ALLOTTED TO VEGETABLES.

## MEASURING LAND

It is usually possible to ascertain the acreage of a given plot of land from an Ordnance Survey map. The scales of these maps are as follows:

- 1/63360 = 1 in. to the mile; used for the kingdom;
- 1/10560 = 6 in. to the mile; used for counties;
- 1/2500 = 25 in. to the mile; used for parishes, and
- 1/500 = 10.56 ft. to the mile; used for towns.

For measuring land the chain is used. This measures 22 yards or 66 feet, and is divided into 100 links, each 7.92 inches. There are 10 square chains to the acre.

An acre, laid out as an exact square, has its sides each 316.23 links, or 208.71 feet, or 69.57 yards long.

The simplest method of measuring a given piece of land is to plot it out into triangles. The total area then equals the total of all the triangles. To calculate the area of a triangle multiply the base in links by its perpendicular in links, and divide by two. Add together the area of all of the triangles.

To find the area in acres, proceed as follows: since there are 100,000 square links to the acre, point off 5 figures from the right, and this gives the acreage and decimal fraction. Multiply the decimal fraction by 4, point off 5 figures again,



## MEASURING LAND

and this gives roods and the decimal fraction of a rood. Multiply the decimal fraction by 40, point off 5 figures, and it leaves poles and the decimal fraction of a pole.

To set off a right angle with a chain only, measure off 40 links for a base-line; then take 30 links for the perpendicular, and 50 links for the hypotenuse. By fastening the extremities of the last 80 links, that is, the perpendicular and hypotenuse, to the ends of the base-line and pulling taut, a right-angled triangle is formed.

**TABLE CONVERTING DECIMAL FRACTIONS OF AN ACRE INTO ROODS AND POLES**

Decimal Fraction	Roods	Poles	Decimal Fraction	Roods	Poles
.025	0	4	.525	2	4
.05	0	8	.55	2	8
.075	0	12	.575	2	12
.1	0	16	.6	2	16
.125	0	20	.625	2	20
.15	0	24	.65	2	24
.175	0	28	.675	2	28
.2	0	32	.7	2	32
.225	0	36	.725	2	36
.25	1	0	.75	3	0
.275	1	4	.775	3	4
.3	1	8	.8	3	8
.325	1	12	.825	3	12
.35	1	16	.85	3	16
.375	1	20	.875	3	20
.4	1	24	.9	3	24
.425	1	28	.925	3	28
.45	1	32	.95	3	32
.475	1	36	.975	3	36
.5	2	0			

### CALCULATION OF AREAS OF DIFFERENT SHAPES

The area of a square = any one side multiplied by itself.

„ „ rectangle = length multiplied by breadth.

„ „ parallelogram = base multiplied by perpendicular height.

„ „ circle = diameter multiplied by itself multiplied by .7854.

„ „ sector of circle = length of arc multiplied by  $\frac{1}{2}$  radius.

## CALCULATION OF AREAS

**Gardens with Irregular Boundaries.**—When calculating the area of a piece of land with an irregular boundary, proceed as follows:—

Lay off a base-line, and from it measure offsets to the different bends and angles of the boundary. These must be at right angles to the base-line. The land will thus be divided into trapezoids and triangles. The area of a trapezoid is calculated by adding together the two sides, dividing by 2, and multiplying the answer by the base.

Example : The area of BCIH =  $\frac{BH + CI}{2} \times BC$ .

Each trapezoid is treated in the same way, the areas of the triangles are also found, and the whole is added together.

## IMPERIAL SQUARE MEASURE

144	square inches =	1 square foot (sq. ft.)	1 acre = 6,272,640 square inches
9	square feet =	1 square yard (sq. yd.)	1 acre = 43,560 square feet
36	square yards =	1 square pole	1 acre = 4,840 square yards
40	square poles =	1 rood	1 acre = 160 square rods
4	roods =	1 acre (ac.)	1 acre = 10 square chains
640	acres =	1 square mile (sq. m.)	

## IMPERIAL LINEAL MEASURE

12 inches	= 1 foot (ft.)	The chain is used for measuring land.
3 feet	= 1 yard (yd.)	1 chain = 4 poles or 22 yards
6 feet	= 1 fathom (fm.)	1 chain = 100 links (lks.)
5½ yards	= 1 rod, pole or perch	1 link = 7.92 in. or 22/100 yards.
40 poles	= 1 furlong (fur.)	10,000 sq. links = 1 sq. chain
8 furlongs	= 1 mile (m.)	25,000 sq. links = 1 sq. rood
3 miles	= 1 league (lea.)	100,000 sq. links = 10 sq. chains or
69 1/9 miles	= 1 degree (deg. or °)	1 acre

## CONVERSION TABLES

Feet	Links	Links	Feet
1	1.5151	1	.66
2	3.0303	2	1.32
3	4.5454	3	1.98
4	6.0606	4	2.64
5	7.5757	5	3.30
6	9.0909	6	3.96
7	10.6060	7	4.62
8	12.1212	8	5.28
9	13.6363	9	5.94
10	15.1515	10	6.60

## 'SOME USEFUL TABLES

Converting		Multiply by	Converse
Feet .	into links	1.515	.66
Yards	„ links	4.545	.22
Feet	„ miles	.000189	5280
Yards	„ miles	.00057	1760
Chains	„ miles	.0125	80
Square feet	„ square inches	144	.00694
Square yards	„ acres	.0002066	4840
Cubic inches	„ cubic feet	.000579	1728
Cubic feet	„ cubic yards	.03704	27

### WOOD

Stack ...	108 cubic feet	Square ...	100 square feet
Standard ...	165 cubic feet		

### SOLID MEASURE FOR TIMBER

1 load of rough timber	=	40 cubic feet
1 load of squared timber	=	50 cubic feet
1 ton of timber, shipping	=	42 cubic feet
1 ton of timber, freight	=	40 cubic feet
1 stack of wood	=	108 cubic feet
1 cord of wood	=	128 cubic feet
1 standard of timber	=	165 cubic feet
1 square of wood (flooring)	=	100 square feet

### ROSE POSTS

Usually constructed of larch poles or oak. A series may be connected by ropes (creosoted), or by chains made of wooden or metal links.

Untrimmed larch poles placed 8 feet apart, with side branches 2 feet to 3 feet long, are an alternative.

### PERGOLAS AND ARCHES

Generally constructed of larch poles (for rustic effect). Square oak posts for strength and beauty. Brick piers with tiles for very massive, formal treatment.

### MATERIALS FOR SCREENS

**Trellis**—Made chiefly in oak, deal or teak, deal being the cheapest.

**Wattles**—Made usually in 6 inch lengths with varying heights.

### MATERIALS FOR ROOFING

**Tiles**—A load equals 1,000.

**Thatch**—17 trusses of wheat straw thatches square of roof.

## SOME USEFUL TABLES

### WIRE AND FENCES

To enclose	1 acre	needs	835 feet.
"	2 acres	"	1,180 feet.
"	3 acres	"	1,446 feet.
"	4 acres	"	1,670 feet.
"	5 acres	"	1,866 feet.
"	6 acres	"	2,045 feet.

### PATHWAY MATERIALS

See list following path construction.

### PLANTING TABLE (TREES)

**SHOWING THE NUMBER OF TREES TO AN ACRE AT DISTANCES FROM 1 FOOT TO 30 FEET EVERY WAY BETWEEN EACH TREE**

Feet	Number	Feet	Number	Feet	Number	Feet	Number
1	43560	7½	774	14	222	21	99
1½	19360	8	680	14½	207	22	90
2	10890	8½	603	15	193	23	82
2½	6970	9	537	15½	181	24	76
3	4840	9½	482	16	170	25	70
3½	3556	10	435	16½	164	26	64
4	2722	10½	395	17	150	27	58
4½	2151	11	360	17½	142	28	55
5	1742	11½	329	18	134	30	48
5½	1440	12	302	18½	127	32	42
6	1210	12½	270	19	120	36	33
6½	1031	13	257	19½	114	40	27
7	889	13½	239	20	108	—	—

### SPACING OF PLANTS

<i>Annuals</i>		<i>Perennials</i>	
Small Edging Plants	4-6 inches apart	Edging	4-6 inches apart
Bedding Plants	6-12 " "	Dwarf	9-12 " "
<i>Bulbs</i>		Medium	12-15 " "
Ordinary sized	4-6 " "	Tall	12-18 " "
Large	12-18 " "		

### NUMBER OF PLANTS REQUIRED TO FILL EACH SQUARE YARD OF A BED

Distance Apart in Inches	Number	Distance Apart in Inches	Number	Distance Apart in Inches	Number
4 × 4	80	6 × 8	27	10 × 10	13
4 × 6	54	8 × 8	20	10 × 12	10
6 × 6	35	8 × 10	16	12 × 12	9

*Roses:* Bush, 1½-2 feet; Standard, 6-12 feet.

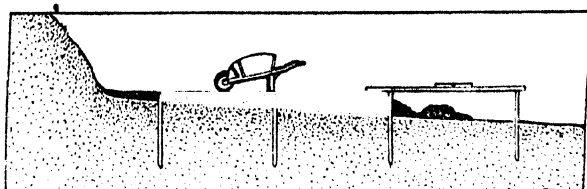
## LEVELLING

**Trees and Shrubs.**—These vary so much in the size to which they will ultimately attain that it is impossible to give any figures here, but care should always be taken that each individual plant shall have ample space to develop its natural form and beauty.

*For Fruit Planting Table, see page 194.*

### LEVELLING

*Because of the work entailed and the cost, levelling should not be undertaken on anything but a very small scale. Commence by staking out the area to be levelled, then select one corner as a starting-point, drive in a peg so that its head lies at the level to be worked to, and if the ground is undulating, from it dig trenches, the bottoms of which are all in the same horizontal plane. These trenches should radiate over the whole of the surface to be levelled and will*



MOVING THE SOIL.

The earth is made up to the tops of the pegs, across which a straight-edge and spirit-level have been placed, to ascertain that they are all in the same horizontal plane.

show where soil must be cut away and where it should be added, also in what quantities. In these trenches start driving in pegs 6 to 9 feet apart, so that the heads of all of them are exactly level with the top of the first peg in the corner whence a start was made. To make sure that the pegs are level the straight-edge is laid across from peg to peg, and the last-inserted peg is knocked in until the bubble of the spirit-level resting on the straight-edge is in the centre of its run. Where a depression is to be filled in, or where the slope is even and not undulating, there is no need to dig these "trial" trenches, as the lie of the ground is obvious and the pegs can be put in at once, still working from one guiding peg.

Before the so-called rough levelling is commenced, all the top-soil should be removed and stacked clear of the field of operations. The earth should now be cut away from the higher parts and be transferred to the lower, being rammed hard down. The rough levelling completed, the garden-line should be tightly stretched from post to post—from the very tops, of course—and then the top-soil can be brought back





"EARLY-FLOWERING CHRYSANTHEMUM "DAWN." [C. W. Teager.

## DRAINING

and spread evenly over the surface and raked fine and levelled up to the level of the line between the pegs.

## DRAINING

To ascertain whether drainage is necessary, in winter dig a hole 3 to 3½ feet deep; if water percolates quickly into the cavity the land must be drained. Soil where the water hangs about in pools on the surface after the cessation of rain will also require attention.

**Trenching.**—There are some lands that have a thin stratum of material impermeable to water some 18 inches below the surface. Such land cannot be drained by a system of drains, as the water, over the greater part of the surface, would not be able to percolate into them, but by digging to a depth of 2 to 3 feet over the whole surface the hard crust is thoroughly broken up and the water from the top-soil is enabled to sink down through it. This may be found to provide adequate drainage; if it does not, pipe- or trench-drainage must also be installed.

**Pipe-drainage.**—This is somewhat expensive; cost, therefore, often leads to the small garden not being drained at all, which is, of course, the worst possible policy. Some attempt must be made at drainage, where necessary, and when cost makes the use of pipes prohibitive, quite efficient drainage can be effected by cutting parallel trenches about 3 feet deep and 1 foot wide across the ground to be drained. Into the bottom of these trenches should be thrown 9 inches of old rubble, and any hard material that will keep the soil open. Brush-wood and heather may be used, but are not so lasting as clinkers and rubble. Over this drainage material place turves bottom-side-up to prevent the finer soil from silting through and clogging up the drainage. The remaining 18 inches or so should be filled in with the excavated soil; this must not be rammed down, but should be allowed to sink naturally. These drains must either empty themselves into a ditch that will carry off the water, or, where this is not possible, a large sump must be dug in the lowest part of the garden and filled in with drainage material in the same way as the drains.

**Laying the Drains.**—If the ground has a clay subsoil and has a uniform slope, it will be sufficient to lay parallel lines of 2 or 3-inch pipes at a distance of from 15 feet to 20 feet apart, provided always that pipes are used in making the

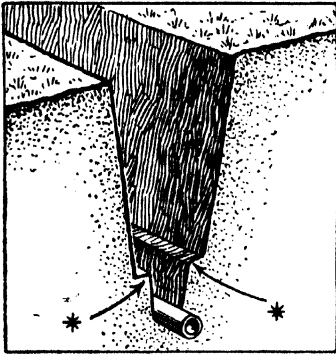


## DRAINING

**drains.** When the land slopes slightly on either side to a depression in the middle, a main drain of 3 or 4 inch pipes should be laid along this depression from the head to the outfall, and lateral drains of 3-inch pipes entering the main drain with junction-sockets and elbow-joints.

Circumstances will dictate the depth at which the pipes should be laid, but a main drain will vary in depth from  $2\frac{1}{2}$  feet to  $4\frac{1}{2}$  feet, being shallowest at the head and deepest at the outfall. The depth of lateral drains will of course depend upon that of the main drain. All lateral drains should enter a main drain obliquely and not at right angles, and the fall should be greater when the lateral approaches the main drain than at any other portion of its course. From 15 feet to 20 feet should be allowed between the feeders to a main drain on clay soils. The fall of a main drain should never be less than 1 in 200.

The pipes are laid end to end in a straight line, or the end of one pipe is just fitted into the socket made for its reception at the end of the pipe that comes next to it, if pipes of this construction are used. In this case, no clay or cement must be used to bind the pipes together, but at the junction of any feeder with a main drain the union should be carefully made by clay or cement. A straight-edge and spirit-level should always be used to ensure that the pipes are laid truly. Cover the pipes for a few inches with rough porous rubbish, broken brick, clinker, heather, gorse, or any such material, and the drains will be effective and permanent.



SECTION OF A DRAIN.

It is best to dig drains V-shaped, as shown in the above diagram; and at the bottom, along the narrowest part below the shoulders\*, are placed the pipes, end to end.

## LAWN

**Drainage.**—A fairly moist soil is essential to a good lawn, though it is equally necessary that the soil should be well-drained. Deep drainage is not necessary, but on heavy clay pipe-drains are usually necessary, and a 4- to 5-inch layer of ashes must be placed immediately below the top-soil, which should be from 6 to 9 inches in thickness.

**Soil for the Lawn.**—This should be a good fibrous loam, rich in humus, the ordinary soil excavated in making the foundations of a house being altogether unsuitable. In introducing soil from outside it is, however, important to remember that it is likely to contain the seeds of many weeds. A certain time should therefore be allowed to elapse in order to afford opportunity for these seeds to germinate, and the resulting weeds to be destroyed before any grass seed is sown. As an alternative, the introduced soil may be sterilized and manured. If fresh mould cannot be introduced, the top-soil, if heavy, must be well broken up and improved. When the surface is quite level the upper 4 inches of the soil should be made as fine as possible by repeated rakings and thorough rollings, until the surface is so firm that it scarcely shows the mark of a boot when trodden on.

**Grass Seed.**—Below are given lists that will enable the reader to choose seed suitable for sowing on a lawn in practically any situation that he is likely to encounter. All reliable firms will, however, supply a mixture suitable for any particular class of soil.

### GENERAL USE :

*Cynosurus cristatus*  
*Festuca ovina tenuifolia*  
*Poa nemoralis sempervirens*  
*Poa pratensis*  
*Poa trivialis*

### LIGHT SOIL :

*Cynosurus cristatus*  
*Festuca duriuscula*  
*Festuca ovina tenuifolia*  
*Festuca rubra*  
*Poa pratensis*

### DRY SOIL :

*Festuca rubra*

### POOR AND SHALLOW SOIL :

*Festuca duriuscula*

### UNDER TREES OR MOIST,

#### SHADY SITUATIONS :

*Poa trivialis*

### TOWN GARDENS :

*Poa annua*  
*Poa nemoralis*

### SPORTS GROUNDS :

*Festuca rubra*

### NEAR SEA :

*Festuca rubra*

### LARGE AREAS :

*Lolium perenne*

## THE LAWN—SEED—TURF

**Quantity of Seed Required.**—From 1 to 2 oz. per sq. yd.

**Sowing the Seed.**—The best times to sow the seed are early in April or about the end of August or the beginning of September. It should be sown on a day when there is no wind and when the soil is dry enough not to stick to the boots or the rake, and great evenness should be aimed at, two sowings being made at right angles to one another. The even distribution of seed is best obtained by marking the lawn out into squares whose sides are from a yard to 2 yards in length. The seed is then divided into as many portions as there are squares. Lay boards over the surface of the lawn so that the sower can move about without his boots sinking into the surface of the lawn. A very light raking is then desirable, just cover with a  $\frac{1}{4}$  of an inch of finely-sifted soil, and afterwards the ground should be rolled over, lengthwise and across. To protect the seeds from the birds, black cotton should be stretched on short sticks, or old netting can be thrown over small tree branches spread over the seeded surface. As soon as the grass is an inch or so high roll it with a light wooden roller—in fine, dry weather—and when it has grown to 2 to 3 inches above the ground weeds must be removed and regular cutting with the scythe and rolling must be begun. A top-dressing of an ounce of bonemeal to the square yard will help on the young grass. The scythe must continue to be used for several months until the grass is sufficiently secure in the ground to bear the mowing-machine. It should be possible to use the mower in June, but the blades must be raised an inch above the normal level for the first two or three cuttings. Special seed should be obtained for the purpose from a first-rate firm.

**Lawns from Turf.**—Ordinary turves usually measure 3 feet long by 1 foot wide. Cumberland turves are 1 foot square. In preparing a piece of ground for turfing, the soil should be well dug to a depth of about 9 inches and lightly manured. The soil should then be well rolled and levelled, a spirit-level and straight-edge being used. Immediately before the turves are laid down the top  $\frac{1}{2}$  inch of the soil should be raked up. The turves should be placed turf side down in a wooden frame or gauge-box  $1\frac{1}{2}$  inches deep, made so that they lie tightly in position. A two-handed knife with a long curved blade is then passed straight across the frame to cut off any inequalities. When put down they should be fitted very close together, laid diagonally across the lawn, and



(R. A. Malby.

COREOPSIS (MIXED).

M.M.S.



## THE LAWN—WORMS—FAIRY RINGS

“bonded” as bricks are in a wall. Finely-sifted soil must be worked in to fill the crevices, and the turf should at once be watered well and then rolled. Water should be given daily for some time, and rolling both across and up and down with a light roller should be almost constant, provided the soil is not too wet. Turves may be laid in fine weather, in spring or autumn. For the first three weeks the grass should be cut twice a week with the scythe, after that time it should be cut with the machine.

**Mowing the Lawn.**—Generally speaking mowing is necessary from March until about the middle of November, and in mild weather it may be continued at intervals right through the winter. The grass, unless newly sown, should never be allowed to grow tufty and long. In spring and autumn it will be sufficient to mow the lawn once in ten days ; in summer it will be necessary once a week, and even twice a week when the weather is warm and showery. In very hot, dry weather, the knives should be raised, but the collecting box should always be used to pick up the flowery stems of weeds and prevent seeding.

**Watering the Lawn.** Grass seed should not be watered after sowing, and the established lawn should not receive water until a long drought makes this necessary, as once begun, watering must be continued as long as the dry weather lasts.

**Removing Worms from the Lawn.**—The only way to get rid of worms on a lawn is to use a worm-killing solution. A ready-made mixture can be obtained from any seedsman, but a simple and effective one is Permanganate of Potash,  $\frac{1}{2}$  ounce to each gallon of water, thoroughly dissolved. A soaking with this will bring the worms to the surface, where they may be swept up and destroyed.

**Fairy Rings and Fungus.**—Thoroughly soak, not only the ring, but about 2 feet outside it (because the fungus is always travelling outwards), with Bordeaux mixture (Copper Sulphate and Lime), or Burgundy mixture (Copper Sulphate and Soda), loosening the soil by stabbing it all over with a fork, or using a spiked roller, this will help the chemicals to act quicker and more effectively.

Circles of luxuriant grass should be lifted to a depth of 10 or 12 inches, new mould being filled in and seed sown or turves laid.

# **DRESSINGS AND FERTILISERS FOR THE LAWN**

State of Lawn	Nature of Soil	Fertilizer or Top-Dressing Required	Amount to Apply per Square Yard	When to Apply	Remarks
Young Seedling Grass Lawn, Mossy	Any Any	A complete grass fertiliser  Soot	1 oz.  Sufficient just to Blacken Grass	May  October and November Before rain if possible	The soot should have been exposed to the atmosphere for 6 months before application. Encourages growth of young grass. Wood-ashes applied in December also help towards the elimination of moss.
Grass Scorched	Light Sandy or Gravelly	Equal parts of well-sieved fibrous Loam and Leaf-mould with a sprinkling of good guano, soot or hornmeal finely powdered	Dressing $\frac{1}{2}$ in. Thick	February	The compost should be very finely sifted. If well-sieved the compost soon works down into the roots and allows the fine grass to grow.
Grass Scorched	Heavy	Nitrate of Soda	$\frac{1}{2}$ oz.	March	Discourages clover, but encourages growth of grass in cold weather.
Grass Poor and Weak	Light	Sulphate of Potash, or Kainit	1 oz.	March	
Grass Poor and Weak	Heavy	Bone Meal, or equal parts of Bone Meal and Superphosphate of Lime	2 oz.	October or February	
Grass Poor and Weak	Damp and Sour	Slaked Lime (fresh), or Pulverized Chalk	10 oz.	November or December	This dressing sweetens the soil. Ten days after application thrust the prongs of the fork vertically 6 in. into the surface, all over, to let the air into the soil.
Grass, Rank and Coarse	Heavy	Clean, Sharp Sand (well-scrubbed Sea or River Sand is best, never use soft, binding Sand)	Dressing $\frac{1}{2}$ in. Thick	Early February	

*Note* : Basic Slag should not be used on lawns as it encourages the growth of clover.

# DRESSINGS FOR KILLING WEEDS ON THE LAWN

Type of Weed	Dressing to be Used	Quantity applied per square yard	When to Apply	Remarks
Daisies	3 parts Ammonium Sulphate, 1 part Sulphate of Iron, and 30 parts Fine, Sharp Sand or Weed-killer	2 ½ oz.	September in Dry Weather, with a Second Dressing early in April  Spring or Autumn	Mix the ingredients of this lawn-sand thoroughly together.  Apply on a dry, still day.
Dandelions	Weed-killer or Carbolic Acid (1 oz. to a gallon of water) in a weed-killer ejector or on a skewer Nitrate of Soda or Anti-clover Mixture	A Drop in Heart of Each Weed A Drop in Heart of Each Weed ½ oz. } ¾ oz. }	October and November  March. Repeat Dressing in 3 weeks' time	Pierce the heart of each weed and apply weed-killer.  Besides discouraging clover, this fertiliser encourages the growth of grass in cold weather. Clover may also be raked out and is weakened by very close cutting with the machine in dry weather. Most seedsmen sell a special anti-clover mixture with full directions on the container.
Moss	2 parts Kainit to 3 parts Superphosphate of Lime or Sulphate of Iron	2 ½ oz. ½ oz.	January  October	Give this dressing two or three years running.  Rake out all possible moss before applying the weed-killer, which must be mixed with twenty times its bulk of sand or fine mould and well raked into the surface. Ten days after application again rake out all dead moss.
Plantains	See Daisies			



## PATHS—DRAINAGE

**Moss in the Lawn.**—In addition to the soot dressing recommended in our table of Dressings and Fertilizers for the Lawn, specially-prepared chemical eradicators for moss are obtainable. A good raking with a sharp-toothed rake, and brushing with a birch broom before mowing, is beneficial.

### PATHS

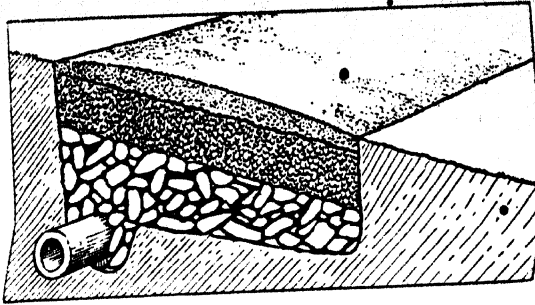
**Draining the Path.**—*It will be found that in light, porous soils the rough stones, bricks, or clinkers used as a foundation will provide sufficient drainage but in heavy, retentive clays a pipe-drain will invariably be advisable; this may run directly below the centre of the path, or else on either side of the path; on the lower side when the path is on a side slope, and always at the lowest point below the clinker or brick foundation, and resting on a firm base. Where there is any doubt as to the porosity of the soil, always lay a drain. A single drain down the centre or down one side will be found adequate for ordinary paths of 4 feet in width; but paths wider than this should have drains down each side. The pipes used for draining should be 3 or 4 inches in diameter and must be laid from  $1\frac{1}{2}$  to 2 feet deep, according to the nature of the soil and the width of the path.*

**Width of Paths.**—A path must never be less than 2 feet in width, even if it is of quite secondary importance. A good average width is 4 feet; this allows for the easy passage of the barrow, etc.

**The Gravel Path.**—First, the course of the path must be marked out with stakes, and the surface soil removed to the depth of 9 to 18 inches, if there is no lack of materials to fill it; the wider the path the deeper the excavation necessary. The nature of the soil also affects the depth of excavation: in heavy clay at least 18 inches should be removed, in light soil 9 inches to a foot will suffice. There is a point that must be stressed here, and that is the importance of eradicating all perennial weeds, especially those with long creeping roots, from the soil at the bottom and sides of the path. If this is not done, all kinds of weeds will soon make their appearance through the new path, and will be very difficult to get rid of. Weed-killer *will* kill these perennial weeds, but it takes three or four years to effect a thorough clearance. From one-third to one-half the depth of the excavation must now be filled up with rough stones, brickbats, clinkers from the brickfields, slag

## PATHS—GRAVEL—CONCRETE

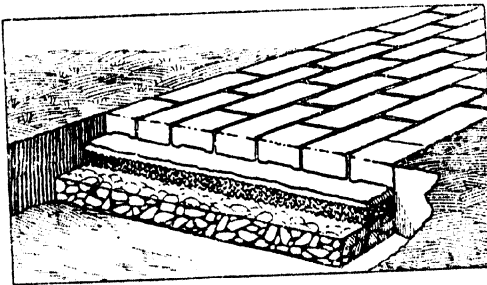
and scoriæ from the iron-works, or any coarse, hard rubbish that can be gathered together; the greater part of the remainder must then be filled up with coarse gravel, shingle, etc., which may be mixed with a little earth to give consistency to the whole, and finally coated with



**GRAVEL PATH.**

6-9 inches of coarse clinker or rubble is placed over the drain and rammed firm. Over this is laid 4 to 6 inches of coarse gravel, and on top of this again 2 inches of gravel "hoggin'."

gravel to the depth of 2 or 3 inches, which must be raked level and be constantly rolled with a heavy garden roller until the path is hard and solid. The gravel must not be made too wet or it will adhere to the roller, and any large stones should be screened out of the gravel and used in the foundation. The correct level for the crown of the path can be marked by wooden pegs driven in to the right depth. Allow the path to set for a few days before using it and then fill up any hollows with gravel and roll again. Gravel taken from the beach should not be used if another kind is obtainable, as it does not bind and always remains loose. If, however, it must be used, mix a quarter part of clean dry clay with the gravel before it is laid; when moistened, the mixture will bind well. Supposing, as is sometimes the case, that the ground is of a loose, porous character, or wet and marshy, and, therefore, not calculated to afford a solid basis for the pathway, it is



**BRICK PATH.**

The foundations are made as for the gravel path, but in place of the top layer of "hoggin" is a layer of mortar in which the bricks are set.

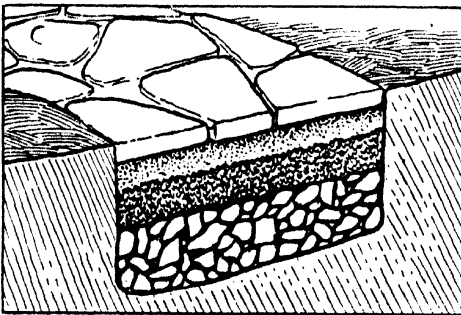
then a good plan to make the trench deeper, and to lay brushwood at the bottom before throwing in the rough rubbish.

**The Concrete Path.**—Proceed as for the Gravel Path and finish off with a layer of concrete mixture (see page 39).

## PATHS—BRICK—PAVING

**The Brick Path.**—Proceed as for Gravel Path and finish off with a layer of hard bricks well and evenly embedded in a layer of mortar, which should take the place of the top layer of hoggin. Fill in the cracks with fine ash or cement.

**Crazy Paving.**—This should be well and evenly laid, otherwise it is very unpleasant to walk on and will always be giving trouble because of the loosening and rising of the stones. In the initial stages of construction the procedure is the same as for a gravel path, that is to say, the same remarks apply as to drainage, and the foundation of large stones or broken bricks is laid down in the same way, but need not be quite so deep; the same may be said of the layer of clinkers or smaller stones. The one great aim is to afford a sound and level surface for the paving, and the straight-edge and spirit-level will, therefore, be constantly in use with a view to this. The foundations must be rammed and rolled absolutely firm; if there is the slightest fear of any settlement in the base, as may well happen in clay, an inch layer of cement in which to lay the paving had better be put down. Over the hard core spread a 2-inch layer of sand or ashes, if cement is not used; make this quite level and then lay down the paving, fitting the pieces carefully together so that small pieces are not required, as they always tend to work loose and twist one's ankle. No crevices of much more than an inch in width should be left between the stones or the path will be uncomfortable to walk on and will not remain firm. Where there



CRAZY PAVING.

The foundations are laid in the same way as for the gravel path, but they need not be quite so deep, and in place of the gravel "hoggin" is a 1 to 2-inch layer of sand or fine ashes in which the paving is set.

is likely to be much traffic, the main stones, and all those at the sides of the walk, should be set in mortar. This will tie the whole together and keep it firm. Fill the interstices with sandy loam, so that rock plants, such as saxifrages, thymes etc., may be planted. (See List of Plants for the Paved Garden.)

## PATHWAY MATERIALS

### MIXING CONCRETE

*Concrete is a mixture of cement, sand, gravel, broken stones, brick rubbish or similar materials in varying proportions. A useful mixture consists of one part of cement, two parts of sand, and two parts of ballast. Whilst still in the dry state, the materials should be turned over two or three times. The heap is then wetted with water poured over it from a large water-pot fitted with a fine rose, and the whole mixed by again turning it over once or twice, so that the materials may be thoroughly amalgamated.*

### PATHWAY MATERIALS

**Gravel**—Tarred or bituminous treated surface sometimes advisable to prevent looseness, weeds and lifting by frost.

#### **Crazy Paving—**

*Limestone*—Light coloured, Ripple faced. Do not cement.

*Somerset*—Rough-faced, brown, 2 inches thick. Covers 8-10 square yards to the ton.

*Somerset*—Smooth-faced, light grey. Covers 10-12 square yards to the ton, 1-1½ inches thick.

*Sandstone*—A hard stone, similar to York, 1½ inches thick. Covers 10 square yards to the ton.

*Sandstone (Red)*—1½ inches thick. Covers 10 square yards to the ton.

*Welsh*—Dark grey stone, 1½ inches thick. Covers 10 square yards to the ton.

#### **Square Paving—**

*Welsh*—As already mentioned.

*York*—Light brown, self-faced. One ton covers approximately 10-11 square yards. Non-flaking and frost-proof. Many of the crazy paving stones are available for random paving.

**Stepping Stones**—light brown ripple faced—i.e. natural uneven surface crazy paving. One ton covers approximately 8 square yards. Allow a short walking space between stones.

**Brick**—Dutch Clinker, 4½ inches by 3 inches by 1½ inches. Paving Brick, 9 inches by 4½ inches by 1¾ inches. Stock or Kiln, 8½ inches by 4¼ inches by 2¾ inches. A load of bricks equals 500. 1 square yard of paving requires 32 bricks laid flat, 48 bricks laid on edge. Only bricks that will stand frosts should be used.

**Grass**—Should have stone edging to facilitate cutting.

## EDGING PLANTS—DIGGING

### A SELECTION OF EDGING PLANTS

#### Annuals

<i>Ageratum</i> (dwarf) H.H.	<i>Portulaca</i> H.H.
<i>Callistephus</i> [China Aster] (dwarf) H.H.	<i>Reseda odorata</i> [Mignonette]
<i>Coreopsis</i> (dwarf)	<i>Silene pendula compacta</i>
<i>Lobelia</i> (dwarf) H.H.	<i>Tagetes</i> [Marigolds] (dwarf)
<i>Malcomia maritima</i> [Virginia Stock]	<i>Tropæolum</i> [Nasturtium] (dwarf)
	<i>Verbena</i> .

H.H. denotes Half-hardy Annuals.

#### Perennials

<i>Achillea umbellata</i>	<i>Iberis sempervirens</i>
<i>Alyssum saxatile compactum</i>	<i>Linum</i> (various)
* <i>Anchusa myosotidiflora</i>	<i>Lithospermum</i>
<i>Antirrhinums</i> [Snapdragon] (dwarf)	<i>Lysimachia</i> (Creeping Jenny)
<i>Arabis</i> (various)	<i>Myosotis</i> (Forget-me-not)
<i>Armeria maritima</i>	<i>Nepeta Mussinii</i>
<i>Aubrietia</i>	<i>Phlox subulata</i>
<i>Bellis perennis</i> [Daisy]	Pinks ( <i>See Dianthus</i> )
<i>Campanula</i> (dwarf)	<i>Polyanthus</i>
<i>Cerastium Biebersteinii</i>	* <i>Primulas</i> (various)
<i>Chieranthus</i> [Wallflowers] (dwarf)	<i>Saponaria ocymoides</i>
<i>Dianthus deltoides, gracilis, squarrosus,</i> etc.	<i>Saxifraga</i> (various)
<i>Dryas octopetala</i>	<i>Sedum</i> (various)
<i>Echeveria</i> H.H.	<i>Veronica</i>
<i>Geranium</i> (various)	<i>Viola</i> (various)
<i>Geum</i> (various)	<i>Zauschneria californica</i>
<i>Gypsophila repens</i>	<i>Zephyranthes candida.</i>

H.H. denotes Half-hardy Perennial.

#### Shrubs

* <i>Erica darleyensis</i>	<i>Genista pilosa</i>
* <i>Erica vagans kevernensis</i>	<i>Lavandula spica.</i>

\* Royal Horticultural Society's Award of Garden Merit.

### DIGGING

All digging should be completed before the soil becomes too wet. If left over-late, the ground may become quite unworkable and the digging may have to be deferred until the early spring—a very bad policy as the soil is thereby deprived of the beneficial action of air, rain, and frost through the long winter. Digging when the soil is very wet does more harm than good. The spade should be inserted in as nearly an upright position as possible. The digger should stand well over his spade, and must not try to dig out more than 5 to 6 inches of soil each time—that is to say in width—he must always dig to the full depth of the spade.

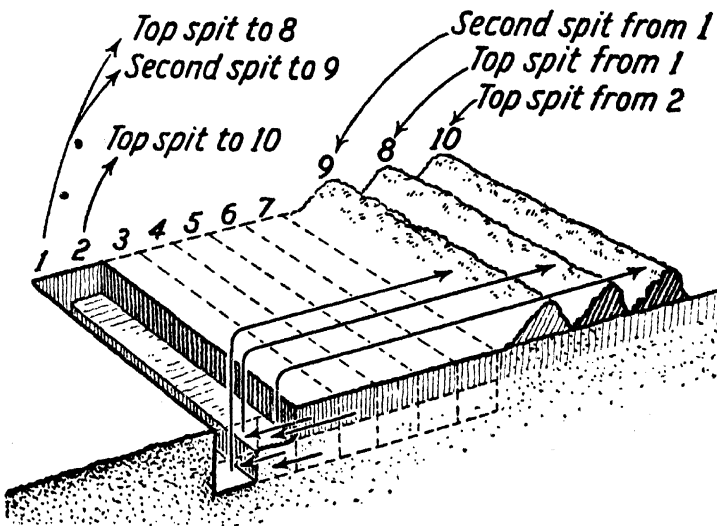
The first thing to be done is to mark the ground out into strips each some 10 feet wide; if trenches longer than this are dug it will be found difficult to keep the soil level. Next take out a trench about a spade deep and a spade wide. The sides of this trench must be cut straight and square, and all

## BASTARD TRENCHING—TRENCHING

loose earth must be removed from the bottom. The soil from this trench should be removed to the other end of the ground that is to be dug over. Another trench of the same size is next taken out, and the soil is transferred into the first trench and is then broken up by cutting and beating with the spade. This process is carried on until the whole ground has been dug over and the last trench taken out is filled with the soil taken from the first trench. In manuring during digging, the manure should be thrown with the fork along the bottom of the trench, and the earth from the next trench must be thrown on top of it.

**Double Digging or Bastard Trenching.**—The process of Bastard Trenching is the same as Trenching (which see), except that the second spit is not removed but is broken up in the same way as the third spit in trenching proper. The top spit of the second portion of ground is not wheeled away, but is placed over the first trench.

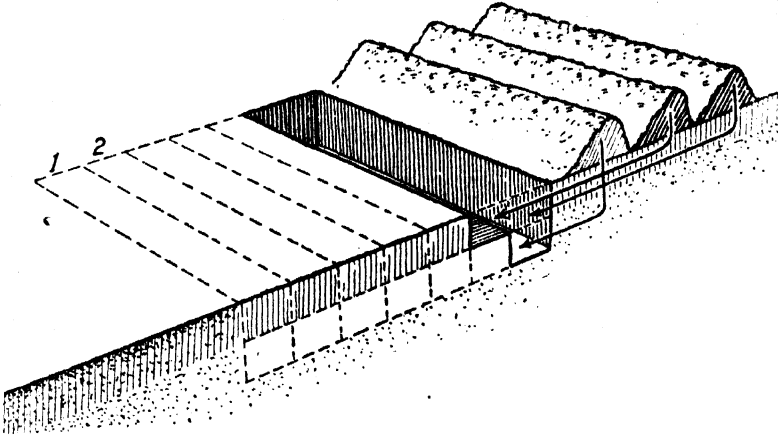
**Trenching.**—First dig a trench 2 to 2½ feet wide and a foot deep, throwing out the top spit, and wheeling it to the farther end of the bed; treat the second spit in the same manner if the trenching is to be three spades deep. This



TRENCHING—COMMENCEMENT.

The top spit of trench 1 is wheeled away to 8 and the second spit to 9; the top spit of the second trench 2, to 10. ●The second spit of 2 replaces the second spit of 1, and the second spit of 3 that of 2; the top spit of 3 replacing that of 1, and so on.

## POINTING



### TRENCHING—COMPLETION.

9 (the second spit from 1) replaces the second spit of the last trench; 8 (the top spit from 1) the top spit of the last trench but one; and 10 (the top spit from 2) takes the place of the top spit of the last trench.

done, dig over the bottom of the trench to the full depth of the fork, break it up well and leave it level. Now remove the top spit of a second portion of the ground and place it alongside the first, and dig up the second spit of this portion and place it roughly over the first trench. Now remove first spit of a third portion and place it in as large masses as possible over the first trench; then dig up the bottom of the second trench in the same manner as the first, and so on till the whole is finished. Heavy soils are best trenched early in the spring. If trenched too early the winter's rain will flatten them down and clog them again, but at the same time they must not be left till so late in the spring that no time remains for the frost and air to work upon them. Light soils may be trenched in the early winter.

## POINTING

In pointing, the garden fork is thrust some 5 or 6 inches into the soil, which is lifted and turned over. The process is useful in beds and borders filled with plants whose roots run near the surface and where it would be harmful to dig to a spade's depth. By pointing, manure is worked into the herbaceous and shrub borders in the autumn, the manure

## WEEDS—MANURES

being first laid evenly over the surface, and is then worked in around the plants. The surface of a bed or border is usually pointed over when it has become caked and hard.

### WEEDS

**Weeds in Beds.**—There is no doubt that the hoe is the best implement with which to control weeds in beds, and if this is used early in the season and is kept in constant use, weeds will get little chance to multiply.

All weeds that have flowered or seeded, likewise all those with "runner" roots with "eyes" on them, which will grow again if they come into contact with the soil, must be burned. The ashes may safely be used as manure. Other weeds can be put on the refuse heap and can later be used as manure.

Hand weeding—gripping the weeds as near the soil as possible and twisting them out with as many of their roots as one can—must be resorted to where the plants are too close to permit of the use of the hoe.

**Weeds in Paths.**—For destroying weeds in paths apply one of the following weed-killers in spring and in fine weather after a good shower of rain.

(1) Salt 1 lb. in Hot water 1 gallon; (2) Copper Sulphate 1 lb. in Water 6 gallons; (3) Caustic Soda 1 lb. in Water 8 gallons; (4) Sulphate of Iron 1 lb. in Water 2 gallons; (5) Commercial Sodium Chlorate,  $\frac{1}{2}$  lb. to a gallon of Water.

The solutions should be thoroughly stirred and kept well mixed while in use, and must be applied through a fine rose. Do not allow the mixtures to touch the skin or clothes, and label all receptacles containing the solutions "Poison."

No domestic animals should be allowed to use the paths for at least three days after the application.

### MANURES

**Organic Manures.**—Farmyard manure directly adds to the soil constituents needed for the healthy life of plants, and also, through the fermentation which it undergoes, and the acids produced thereby, liberates from the soil itself plant foods which would not otherwise be available.

By reason of its texture, and by the gases produced in the process of its fermentation, moreover, it tends to lighten the soil and keep its texture open. For similar reasons there is



## ARTIFICIAL MANURES

considerable value in such manurial substances as leaves, lawn cuttings, vegetable refuse, fish guano and seaweed. All organic waste, indeed, has some manurial value. It is very great in the case of such substances as cow manure, fowl manure, pig manure, and night soil. Wood-ashes and soot are also useful, the former largely on account of the potash it contains, the latter for its ammonia.

**Artificial Manures.**—*For the most part, artificial manures have but little effect—at any rate directly—on the structure or chemical activity of the soil itself, and for this reason, if for no other, they cannot entirely replace organic manures. The three elements which it is generally necessary to add to soil in the form of manure are phosphates, potash, and nitrogen.*

**Nitrogen.**—This is the most expensive of these elements. Apart from guano and other mixed-element manures, the most useful nitrogenous manures are nitrate of soda and sulphate of ammonia. Nitrate of potash is also good, but is much more expensive. In well-drained soils certain bacteria exist, especially round the roots of leguminous plants such as peas, beans, and clover, which, by their activity, collect nitrates from the air and add them to the soil. Thus it is often possible to furnish a soil with both humus and nitrates by growing a crop of clover and lucerne and digging it in. Nitrogenous manures act very rapidly and appreciable growth is often visible a few days after application. Nitrates must, however, not be added to excess.

**Potash.**—Potash helps the development of sugar and starch in seeds, tubers, and fruit, and improves the colour and size of the blooms. Of potash manures kainit is, on the whole, the cheapest and most useful. On heavy soils, sulphate of potash is also valuable.

A simple way of providing potash is to add wood-ashes and the ashes from burnt weeds.

**Phosphates.**—These assist the correct development of the plant, its fruit or seed, and its roots. The three commonest forms of phosphatic manure are superphosphate of lime, dissolved bones, and basic slag. Superphosphate is the quickest acting, whilst basic slag is the cheapest, slowest acting, and therefore most enduring.

Basic slag is a chemical manure whose effects are much those of superphosphate, but almost twice the quantity is required

## MANURES

to produce a given result. It does not succeed mixed with ammonia salts, but is useful with nitrates. It is most useful on medium or heavy soils which are deficient in lime, or are too wet and stiff; but to obtain the full advantage the soil must already be provided with organic matter. Basic slag should not be used on lawns as it encourages clover.

Phosphatic manures encourage the formation of fibrous roots, cause earlier development of the plants, and counteract rank, sappy growth caused by excess of nitrogen in the soil. They should be applied every third year.

**Requirements of Different Soils and Crops.**—*Farmyard manure in reasonable quantities improves almost all soils, heavy or light. It is usually unnecessary to add potash to clay soils, and usually necessary to add it to sandy soils. At the same time it may be necessary, in order to liberate the potash in the clay soil, to add lime. Gravelly and sandy soils are nearly always deficient in nitrogen, and are much less retentive of manures generally. Soils that are peaty, or that have become sour from constant year-by-year manuring with organic manure, are much improved by the addition of quicklime applied frequently in small doses.*

Then again different manures in each class differ in their action; nitrate of soda, for instance, works more rapidly than sulphate of ammonia. Some fertilizers suit one crop, others another. The requirements of both soil and crops must be studied when applying manures.

None of the animal manures, stable manure for example, should be left exposed to rain and air. They are best mixed with a little soil, and covered with about another 6 inches of soil until they are required for use.

**Liquid Manure.**—Dilute stable or farmyard drainings with three times as much water; stir a peck of horse manure into 36 gallons of water; or dissolve 1 lb. of superphosphate,  $\frac{3}{4}$  lb. of sulphate of ammonia and  $\frac{1}{2}$  lb. of sulphate of potash in 30 gallons of water, and apply at the rate of 3 gallons per square yard.

**Amount of Manure to Apply.**—See page 46.

The fertilizers must be spread evenly over the soil and must be crushed fine and be free from lumps, so that every inch of soil receives its proportion of the fertilizer. If this is not done, parts of the ground will receive an excess amount, which may kill the plants. The manure should be well worked in.

# HOW AND WHEN TO MANURE

Showing the soils to which they are most suitable and the time and quantity to apply.  
 NOTE.—A dressing of 2½ cwt. per acre is equal to 2 lb. to the square rod, or 1 oz. per square yard.

Manure	Soil to which best suited	When to apply	Rate per Square Yard	Remarks
Ammonia, Nitrate of	Any	Growing Season	2 oz.	Helpful to Fruit and Vegetables.
Ammonia, Phosphate of	Clay and Chalk	Spring and Early Summer	1 oz.	Cabbage Tribe, Cucumbers, etc.
Ammonia, Sulphate of	Heavy or Light	Autumn (Heavy)	7½ oz.	Never on soil deficient in Lime.
Basic Slag	Light	Spring (Light)	2½ oz.	Best for slow-growing plants. Do not use on Chalk or Sand.
Bone-meal	(Horse) Heavy	Autumn	2½ oz.	Excellent for Lawn, Fruit, Shrubs and Herbaceous Plants.
Farmyard Manure	(Cow) Light	Autumn or Winter	Light sprinkling	All crops.
Fish Meal	Light or Medium	Autumn and Winter	1½ oz.	Good for nearly all plants, especially Potatoes, Turnips, etc.
Guano	Any	Growing Season	1 oz.	Never on soil deficient in Lime.
Hop Manure	Clay, Chalk, Gravel and Sand	Autumn	15 oz.	Good for all Fruit Trees, Shrubs and Herbaceous Plants.
Kalnit Salts	Heavy or Light	Autumn (Heavy)	1 oz.	All Vegetables and Fruit.
Leaf-mould	Heavy Clay	Spring (Light)	Light sprinkling	Adds Humus to the soil.
Nitrate of Potash	Any	Spring	1 oz.	All plants.
Nitrate of Soda	Light and Dry	Spring or Early Summer	¼ oz.	Helps leaf growth in cold weather or after attack by insect pests.
Potash, Muriate of	Light and Medium	Spring or Early Summer	1½ oz.	Helpful to Fruit and Vegetables.
Potash, Phosphate of	Light	Spring or Early Summer	1 oz.	All Flowers and Vegetables and all Fruit under Glass.
Potash, Sulphate of	Light or Heavy	Spring or Early Summer	¼ oz.	All Flowers; Asparagus, Carrots, Cauliflowers, Potatoes.
Poultry Manure	Any	Growing crops or Autumn	5 oz.	All plants, especially Root crops.
Soot	Sandy or Light	Summer	Sprinkling	All young plants.
Superphosphate of Lime	Medium or Light	Autumn (Medium)	2½ oz.	Never on soil deficient in Lime.
Vegetable Ashes	Any	Spring (Light)	5 oz.	Beans, Carrots, Onions, Peas, Potatoes, etc.
Vegetable Refuse	Medium to Light	Winter	Thick sprinkling	Adds Humus to the soil.
Wood Ashes	Heavy and Rich	Autumn or as top-dressing	5 oz.	Excellent for Beans, Carrots, etc.

## MANURES—LIME

**Time to Apply the Various Manures.**—Slow-acting manures, such as bone-meal, basic slag, farmyard and poultry manure are best applied while the digging is being done in the autumn and early winter. Quicker-acting fertilizers, as dissolved bones, kainit, nitrate of soda, sulphate of ammonia, sulphate of potash, must be applied in the spring or when the crops are growing.

### LIME

Lime makes heavy soils more porous and, therefore, better drained and warmer, cleanses the soil of insect and fungoid pests, and sweetens sour soil. It assists the bacteria which render organic matter in the soil available to crops, and is itself an essential plant food.

When soil has become sour the state should be rectified as soon as possible by the application of lime at the rate of 10 oz. to the square yard, the dressing being repeated every four to five years. If the soil is merely deficient in lime, dressings as follows will be sufficient. Lime must never be applied at the same time as farmyard manure. When applied, it should be perfectly dry and powdered as finely as possible, must be evenly dusted over the ground, and immediately well pricked into the top 3 to 4 inches of soil, which must also be dry.

**Quantities and Times to Apply.**—This table will show the forms calculated to prove most effective under the various conditions prevailing.

Form of Lime	Nature of Soil	When to Apply	Amounts to Apply	Remarks
Slaked Lime	Heavy	Before ground is dug over in autumn or winter, unless soil is manured. In the latter case apply in spring.	12 lb. per sq. rod	Use immediately after slaking. Of little value on Light Soils.
Carbonate of Lime	Light and Sandy	At any season.	20 lb. per sq. rod	Of little value on Heavy Soils.

**NOTE.**—A dressing of 2 lb. to the square rod is equal to 1 oz. to the square yard or  $2\frac{1}{4}$  cwts. to the acre.

## MULCHING—TOP-DRESSING

### MULCHING

Mulching saves a great deal of watering in dry weather and consists in spreading a 3-inch layer of half-decayed stable manure, well-decayed vegetable refuse, leaf-mould, coco-nut fibre, hop manure, or other material over the soil occupied by the roots of plants, and in times of drought watering thoroughly before the mulch is laid down. The mulch will then prevent the water from evaporating too quickly. Rain falling or water applied on a mulch soaks through and carries nourishment through to the roots and thus performs an additional service. A mulch is of little benefit unless it is at least 3 inches in thickness; if deeper it is liable to make the roots too cold. After a time the material used, whatever it may be, may be forked into the soil; a new mulch should then be applied, four or five being needed during an ordinary summer. The mulch must not be placed close up to the stems of the plants, as it is apt to cause them to rot. Mulching is usually carried out during May, June, and July; it should not be confused with top-dressing (which see).

### TOP-DRESSING

Some mulches are at the same time top-dressings, but these two preparations are applied for entirely different purposes. The aim of the top-dressing is to enrich the soil and furnish new food for the roots.

The majority of the organic manures and artificial fertilizers mentioned in the article on Manures may be used as top-dressings; those most generally employed for this purpose are bone-meal, kainit, leaf-mould, old lawn mowings, old hot-bed manure, nitrate of soda, sulphate of ammonia, superphosphate of lime and wood ashes. For flower beds and borders a dressing of 75 per cent old hot-bed manure, or if this cannot be obtained the same proportion of well-decayed farmyard manure, and 25 per cent leaf-mould or other well-rotted vegetable matter is excellent. Rock plants will need an additional 25 per cent of leaf-mould and a liberal sprinkling of coarse sharp sand.

Top-dressings are used to augment the plant food supplied by the manure dug in at planting time or when it is not feasible to disturb plants so that manure may be dug in, as in the case of the herbaceous border or the rock garden. They are usually employed in spring or early summer, or in





[R. A. Malby.

ORCHID DAHLIA.

## TOP-DRESSING—TYING AND STAKING

the autumn, the coarser organic manures are generally applied in even layers an inch or two thick and are left on the surface so that rain or water from the hose may soak through them and carry the plant food down to the roots. Artificial fertilizers must be well raked into the soil and then watered.

### MAKING A COMPOST HEAP

Collect together the scourings of ditches, scrapings of non-tarred roads, decayed short grass, half-rotten leaves, all soft vegetable matter, soot, and every bit of solid manure that can be got. Mix these ingredients well together, and allow them to rot thoroughly before being applied as manure to the soil in the late autumn or early winter. If turned two or three times, the heap will decompose without getting too hot or becoming mildewed. After turning, the heap should again be pressed firm, and occasionally sprayed with water or liquid manure to assist decomposition. The matter should remain in the stack for at least six months; if left for longer, it should be covered with a layer of six inches of earth. The compost should be applied to the soil at the rate of 15 lb. to the square yard, and must be well dug in in the autumn or winter, or forked in at planting time in spring, or later when the plants are growing.

### TYING-UP AND STAKING

All plants that attain a height of over, say, 2½ feet and many more of a less robust nature require staking, otherwise wind and rain will soon break them down. Rather than use one large stake, to which all the stems of the plant are tied in a tight bush, quite spoiling its natural shrubbiness and contour, it is better to support each of the stronger shoots of the plant with a separate stick and so preserve the natural contour of the plant. Bamboo canes are excellent for this.

Rarely, however, will time be available for this treatment to be given to smaller plants; with these it will usually suffice if three or four sticks are driven in round the plant and bass or string is tied from stick to stick to support the flower stems. The stakes should slope slightly outwards and away from the plant and the string must not be drawn too tight. This is a good method of supporting plants with delicate stems that would be damaged if individually tied.



## ·TYING-UP AND STAKING

Every effort should be made to hide the stakes, and they should be placed behind the stems and foliage, and where natural branches and wigs of hazel or birch, which are the least unsightly, are not used they should be stained green or brown. Stakes will be very unsightly if allowed to overtop the flower stems; they should, on an average, be three-quarters of the length of the stem to be supported, excluding, of course, the portion of the stake thrust into the ground. It must not, however, be forgotten that this refers to when one is staking the mature stalk, and that when supporting young flower-spikes allowance must be made for growth. It must not be forgotten that the plants continue to grow and that further tying and staking will be necessary at intervals.

Naturally, the tying material varies with the plant and the weather conditions to which it will be subjected. For trees in the open, tarred cord of thickness to suit the size of the trees is used. Perennial border plants are tied up with soft tarred string if it is to last for more than a season. For annuals in the open, for most greenhouse plants, for all tying, in fact, that need not last for more than a year raffia or bass, worsted, or soft string, will be found most suitable.

Whatever the method of staking adopted, the material should always be first tied securely round the stake and is then looped round the stem sufficiently tightly to hold it in position, but not tightly enough to cut into the bark or stem, due allowance being made for the future growth of the branches. Stems should be so tied that they maintain their natural distances apart; if bunched tightly together they will be deprived of a large amount of sun and air and will suffer heavily in consequence. They should be able to sway naturally with the wind, if they cannot the blooms will offer resistance and may be torn and damaged.

## TRAINING

In the case of flowers, climbers, and ornamental shrubs, training is necessary to help to produce the greatest number of really good blooms; to keep the plants neat and within bounds; and, as far as possible, to make them cover a required space while still retaining a natural habit of growth and appearance. Fruit and vegetables are, of course, trained and pruned with a view to quality and quantity in production.

## TRAINING—LABELLING

As it is very difficult to recast the shape of a tree badly trained or neglected when young, ornamental trees should be carefully trained from the outset. Keep the tree well-balanced by trimming and lopping equally on both sides, and where it is necessary to let in more air cut out a complete branch here and there rather than shorten a number. A clean straight stem should always be encouraged, and the supporting stakes must be inserted where necessary.

It is obvious that a brick wall is by no means improved by having a mass of nails driven into it ; other means of supporting a climber are, therefore, often used. Wires can be stretched horizontally in staples across the wall at intervals of, say, 18 inches, and to these the climbers are loosely tied by means of tarred string. A better plan, however, is to make a wooden trellis, with square meshes, which can be fastened against the wall, and the climber is tied to this. Climbers should be trained regularly and not be allowed to run rampant, when the stems will become weak and will be unable to support the heads in future years. Especially is it necessary to cut back the growths of young and newly planted climbers to encourage the formation of strong sturdy stems ; it is a wise plan to cut all new growth on young climbers back by two-thirds each year.

## LABELLING

All plants, especially permanent subjects such as shrubs and trees, should be clearly labelled with indestructible tablets. These are obtainable in various forms—metal, such as lead or zinc, stamped with a machine ; or some composition, marked with ink. In the case of perennials, etc., pieces of plain wood, marked with Indian ink may be thrust in the ground. The name of the plant and the colour of the flowers should be indicated.

## A SECOND CROP OF FLOWERS

Many annuals and perennials which throw up tall spikes of bloom in spring may be induced to flower again in late summer if the first spikes are cut or removed as soon as over : delphiniums, larkspur, lupins, campanulas (tall) and snapdragons are examples. The flowering period of most annuals

## DISBUDDING

may be greatly prolonged if all flowers are systematically picked or removed as soon as withered, so that no seed pods are allowed to form.

## DISBUDDING

Disbudding consists of picking off superfluous buds of certain plants, and by leaving usually only one main bud on each separate shoot, assuring finer flowers. Among the plants requiring this treatment may be mentioned: carnations, chrysanthemums, dahlias and roses. Watch for the buds to form, and as soon as it is apparent that the principal bud on a shoot is a healthy one, rub or pick off the others.

## PROTECTION FROM FROST AND WIND

**Protection from Frost.**—Individual protection for the more tender plants will be required against cold weather and frosts. There are many ways of affording this, varying with the nature of the plant. In exposed localities dwarf roses, especially teas, are best protected by a small mound, 2 to 3 inches in height, of clean dry straw, bracken, coco-nut fibre, or some similar material, heaped round them, or by several inches of soil drawn up round the stem. The taller roses, standards, and half-standards should have dry bracken fronds tied in among their heads. The ordinary garden mat is the most useful thing for tying round other tender shrubs and for covering frames during hard weather. It may be tied into a cone shape and supported on small sticks like a "wigwam" over small plants, or spread over trees trained against walls. The more tender herbaceous perennials in the open borders may, in severe winters, need protection from frost. The crowns should be covered with fibre or small mounds of ashes. The great thing is to keep the plants dry during cold weather; it is when a plant gets wet and is subsequently frozen that the damage occurs. In the early spring protection is chiefly needed for the blossoms of early flowering fruit trees, such as the peach and apricot. This is best given by means of cheap calico, fish-netting or garden tiffany suspended by means of hooks attached to nails in the wall.

**Protection from Wind.**—Should the garden be very exposed to certain prevalent winds, belts of trees or dense-growing shrubs must be planted to break their force and to protect the tenderer plants in the borders. For protecting

## ANNUALS

early spring flowers in exposed positions, temporary screens of coarse canvas, scrim, or coco-nut matting can be erected on poles 3 to 4 feet high, or straw or wattle hurdles may be used to break the force of the wind. If branches of fir or other evergreens are available, these can be stuck into the ground on the windward side of the plants.

## ANNUALS

Under the name of annuals we class the plants which flower and fruit in the same year as that in which the seeds are sown, or, at any rate, complete the series of those processes within twelve months of the time of sowing.

**Hardy Annuals.**—These will grow in any ordinary garden soil. It does not require to be at all rich. Annuals do best, however, in light, sandy soil, and they should have this where possible, though not necessarily. Good drainage is essential.

It is generally wise to incorporate with the natural earth a generous allowance of humus, or of leaves or decomposing vegetable matter which will help to create humus.

Very hardy annuals may be sown in autumn, not earlier than the last week in August, and not later, even in sheltered spots, than the last week in September. Autumn-sown plants, if they survive the winter's frosts, will bloom early in spring. The situation best suited for autumn sowing is one that is sheltered from strong and cutting winds, but free from shade, and well exposed to the sun. Spring sowings for blooming in summer may be made at any time from the middle of March to the middle of April. Later sowings for flowering in autumn should be made from the middle of May to the middle of June.

Annuals for transplanting may be sown in V-shaped drills about  $\frac{1}{2}$  inch deep and 10 inches apart and should be removed when about half-grown to the position in which they are intended to flower; on an average about 9 inches should be left between each plant. They should be firmly planted, then well watered to fix the soil round the roots. The transplanting of annuals, unless very carefully done, is always attended with some danger. This may be obviated if they are raised in pots, from which they can be turned out without disturbing the roots. Hardy annuals sown in spring, and some kinds sown in autumn, need no protection from the weather. (See also Sowing Seed.)

## ANNUALS

### A SELECTION OF HARDY ANNUALS

<i>Alyssum maritimum</i>	<i>Gaillardia lorenziana</i> and	<i>Malope grandiflora</i> , etc.
<i>Bartonia</i>	<i>G. picta</i>	<i>Matthiola bicornis</i> (Night-
<i>Calendula officinalis</i> (Pot	<i>Gilia tricolor</i> and <i>G. aurea</i>	scented Stock)
Marigold)	<i>Godetia</i> (Single and	<i>Nemophila</i> (various)
<i>Centaurea Cyanus</i> (Corn-	Double)	<i>Nigella damascena</i> and
flower)	<i>Gypsophila elegans</i>	<i>N. hispanica</i> (Love-in-
<i>Centaurea suaveolens</i>	<i>Helianthus annuus</i> and	a-Mist)
(Sweet Sultan)	<i>H. cucumerifolius</i> (Sun-	<i>Papaver Rhœas</i> (Shirley
<i>Chrysanthemum</i> (Annual)	flower)	Poppy) and <i>P. somni-</i>
<i>Clarkia elegans</i> and <i>C.</i>	<i>Iberis</i> (Candytuft)	<i>ferum</i> and vars. (Opium
<i>pulchella</i>	<i>Lathyrus odoratus</i> (Sweet	Poppy)
<i>Collinsia bicolor</i> , etc.	Pea)	<i>Phacelia</i>
<i>Convolvulus major</i> and	<i>Lavatera trimestris</i>	<i>Reseda odorata</i>
<i>C. minor</i>	<i>Leptosyne</i>	(Mignonette)
<i>Coreopsis bicolor nana</i> ,	<i>Limnanthes Douglasii</i>	<i>Salvia Horminum</i>
etc.	<i>Limonium Suworowii</i> and	<i>Senecio elegans</i>
<i>Cosmos</i>	<i>L. sinuata</i> and vars.	<i>Silene pendula compacta</i>
<i>Delphinium Gayanum</i> ,	<i>Linaria maroccana</i> , etc.	<i>Tropæolum minus</i> (Climb-
syn. <i>Ajaxis</i> , etc. (Lark-	<i>Linum grandiflorum</i> , etc.	ing Nasturtium)
spur)	<i>Lupinus</i> (vars.) (Lupins)	<i>T. minus</i> and vars.
<i>Eschscholzia californica</i>	<i>Malcomia maritima</i> (Vir-	(Dwarf Nasturtium)
(Californian Poppy)	ginian Stock)	

**Half-Hardy Annuals.**—Sow the seeds under glass in March or April in well-drained pots or pans, in a mixture of loam, leaf-mould, well-decayed manure and silver sand. The temperature should not rise above 75° Fahrenheit by day or fall below 55° at night. (See Sowing Seed.) Harden-off gradually and remove to flowering quarters about the middle of May, but delay the removal to the end of the month if the weather is cold. Although a few of the plants mentioned in the following list are not strictly annuals, they are best treated as such.

### SOME HALF-HARDY ANNUALS

<i>Ageratum mexicanum</i>	<i>Gaillardia</i> (Single and	<i>Nicotiana</i> (Tobacco
<i>Alonsoa Warscewiczii</i>	Double)	Plant)
<i>Amarantus caudatus</i>	<i>Helichrysum bractea-</i>	<i>Petunia</i>
(Love-lies-Bleeding)	tum, etc.	<i>Phlox Drummondii</i>
<i>Anagallis</i> (Pimpernel)	<i>Heliotropium</i> (Heliotrope	<i>Portulaca grandiflora</i>
<i>Arctotis Stœchadifolia</i> ,	or Cherry-Pie)	<i>Scabiosa atropurpurea</i>
syn. <i>grandis</i>	<i>Helipterum</i>	<i>Schizanthus</i>
<i>Brachycome iberidifolia</i>	<i>Impatiens Balsamina</i>	<i>Statice Bonduellii</i>
<i>Callistephus chinensis</i>	<i>Ipomœa</i> (various)	<i>Statice sinuata</i>
(China Aster)	<i>Kochia trichophila</i>	<i>Tagetes</i> (various) African
<i>Celosia plumosa</i> var.	<i>Lobelia Erinus</i> vars.	and French Marigolds
<i>aurea</i> (Prince of Wales'	<i>Lychnis</i> (Agrostemma)	<i>Tropæolum aduncum</i>
Feathers or Cock-	<i>Matthiola annua</i> (Ten-	(Canary Creeper)
comb)	week Stock)	<i>Verbena</i>
<i>Dianthus Heddewigii</i>	<i>Mesembryanthemum</i>	<i>Viola</i>
and <i>D. chinensis</i>	crystallinum	<i>Zinnia elegans</i> , etc.
<i>Dimorphotheca auran-</i>	<i>Mimulus tigrinus</i>	
<i>tiaca</i>	<i>Nemesia strumosa</i>	

## ANNUALS

### ANNUALS FOR SPRING BLOOM

<i>Alyssum maritimum</i>	<i>Iberis</i> (Candytuft)	<i>Nemophila</i>
<i>Asperula azurea setosa</i>	<i>Leptosiphon</i>	<i>Papaver</i> (Poppy)
<i>Bartonia aurea</i>	<i>Leptosyne</i>	<i>Saponaria calabrica</i>
<i>Clarkia</i>	<i>Limnanthes Douglasii</i>	<i>Silene Armeria</i> and <i>S.</i>
<i>Collinsia bicolor</i>	<i>Linaria maroccana</i>	<i>pendula</i> .
<i>Erysimum Perofskianum</i>	<i>Malcomia maritima</i>	
<i>Godetia</i>	(Virginia Stock)	

### ANNUALS FOR AUTUMN BLOOM

By means of late sowing, continually removing dead flowers, or removing early buds, many hardy annuals may be had in flower in Autumn. Those marked \* naturally run on into autumn.

<i>Alyssum maritimum</i>	<i>Cosmos</i>	<i>Tagetes</i> (French or
<i>Calendula officinalis</i>	<i>Iberis</i> (Candytuft)	African Marigolds)
(Pot Marigold)	<i>Kochia trichophylla</i>	* <i>Tropæolum</i> ( <i>Nastur-</i>
* <i>Callistephus chinensis</i>	* <i>Petunia</i> (various)	<i>tium</i> )
(China Aster)	* <i>Salpiglossis</i>	* <i>Verbena</i> (various).
<i>Centaurea Cyanus</i>	* <i>Salvia</i>	
(Cornflower)		

### ANNUALS THAT BLOOM OVER A LONG PERIOD

All dead flowers and seed pods must be continually removed.

Dwarf	Medium (12-24 inches)	Tall
* <i>Anagallis Phillipsii</i>	<i>Ageratum mexicanum</i>	<i>Cosmos</i>
<i>Begonias</i> (various)	<i>Calendula</i>	<i>Delphinium</i> (Lark-
<i>Eschscholzia</i>	<i>Centaurea Cyanus</i> (Cornflower)	spur)
<i>caespitosa</i>	<i>Centaurea suaveolens</i>	<i>Helianthus annuus</i>
<i>Gypsophila muralis</i>	(Sweet Sultan)	<i>Lavatera trimestris</i>
<i>Iberis umbellata</i>	<i>Chrysanthemum</i> (Annual)	<i>Lupinus</i> (various)
(Candytuft)	<i>Clarkia</i>	<i>Malva crispa</i>
<i>Linaria bipartita</i>	<i>Emilia flammea</i>	<i>Scabiosa</i>
<i>Linum grandiflorum</i>	<i>Eschscholzia californica</i>	<i>Schizanthus</i>
<i>Lobelia Erinus</i> vars.	<i>Gaillardia</i>	<i>Grahamii</i>
etc.	<i>Godetia</i>	<i>Sweet Peas</i>
<i>Malcomia</i> (Virginia	<i>Gypsophila elegans</i>	
Stock)	<i>Linaria reticulata</i>	
<i>Phlox Drummondii</i>	<i>Nigella</i> (Love-in-a-Mist)	
<i>Zinnia Haageana</i>	<i>Poppies</i> (* <i>Papaver commuta-</i>	
	<i>tum</i> , etc.)	
	<i>Senecio elegans</i>	
	<i>Zinnia elegans</i> , etc.	

### ANNUALS TO BE SOWN IN SEVERAL SOWINGS FOR SUCCESSION OF BLOOM

<i>Adonis</i>	<i>Gaillardia</i>	<i>Papaver</i> (Poppy)
<i>Alyssum</i>	<i>Gypsophila</i>	<i>Phlox Drummondii</i>
<i>Coreopsis</i>	<i>Iberis</i> (Candytuft)	<i>Reseda</i> ( <i>Mignonette</i> ).
<i>Eschscholzia</i>	<i>Linum</i>	

Denotes R.H.S. Award of Garden Merit.

## ANNUALS

### ANNUALS THAT ARE DIFFICULT TO TRANSPLANT

<i>Centaurea Cyanus</i> (Corn-flower)	<i>Eschscholzia californica</i>	<i>Nigella damascena</i> (Love-in-a-Mist)
<i>Coreopsis bicolor</i> nana, etc.	<i>Gypsophila elegans</i>	<i>Papaver</i> (Poppy)
<i>Delphinium Gayanum</i> (Larkspur)	<i>Iberis</i> (Candytuft)	<i>Reseda</i> (Mignonette)
	<i>Lathyrus odoratus</i> (Sweet Pea)	Sweet Peas (see <i>Lathyrus</i> )
	<i>Lavatera trimestris</i>	<i>Zinnia</i> .

If any of the above plants are grown in small pots and transplanted without disturbing the rootlets they may be transplanted quite easily.

### ANNUALS TO SOW WHERE THEY ARE TO BLOOM

<i>Alyssum maritimum</i>	<i>Godetia</i>	<i>Nigella damascena</i> and <i>N. hispanica</i> (Love-in-a-Mist)
<i>Calendula officinalis</i>	<i>Gypsophila elegans</i>	<i>Papaver Rhœas</i> (Shirley Poppy; <i>P. somniferum</i> and vars. (Opium Poppy), and * <i>P. commutatum</i>
<i>Centaurea Cyanus</i> (Cornflower)	<i>Helianthus annuus</i> and <i>H. cucumerifolius</i> (Sunflower)	* <i>Phacelia campanularia</i>
<i>C. suaveolens</i> (Sweet Sultan)	<i>Iberis</i> (Candytuft)	<i>Portulaca grandiflora</i>
<i>Chrysanthemum</i> (Annual)	<i>Lathyrus odoratus</i> (Sweet Pea)	<i>Reseda odorata</i> (Mignonette)
<i>Clarkia elegans</i> and <i>C. pulchella</i>	<i>Lavatera trimestris</i>	<i>Senecio elegans</i> and vars.
<i>Collinsia bicolor</i> , etc.	<i>Leptosyne</i>	<i>Silene pendula</i> compacta
<i>Convolvulus major</i> and <i>C. minor</i>	<i>Limnanthes Douglasii</i>	Sweet Pea (see <i>Lathyrus</i> )
<i>Coreopsis bicolor nana</i> , etc.	<i>Linaria maroccana</i> , etc.	<i>Tropæolum minus</i> and vars. (Nasturtium).
<i>Cosmos</i>	<i>Linum grandiflorum</i> , etc.	
<i>Delphinium Gayanum</i> (Larkspur)	<i>Lupin</i> (Annual)	
* <i>Dimorphotheca auran-tiaca</i>	<i>Malcomia maritima</i> (Virginia Stock)	
<i>Eschscholzia californica</i>	<i>Malope</i>	
<i>Gilia tricolor</i> and <i>G. aurea</i>	<i>Matthiola bicornis</i> (Night-scented Stock)	
	<i>Nemophila</i> (various)	

### ANNUALS TO SOW IN HEAT AND TRANSPLANT

<i>Abronia</i>	* <i>Dimorphotheca auran-tiaca</i>	<i>Petunia</i>
<i>Ageratum mexicanum</i>	<i>Gaillardia</i> (Single and Double)	<i>Phlox Drummondii</i>
<i>Alonsoa Warscewiczii</i>	<i>Helichrysum bracteatum</i> , etc.	<i>Portulaca grandiflora</i>
<i>Amarantus caudatus</i> (Love-lies-Bleeding)	<i>Helipterum</i>	<i>Salpiglossis sinuata</i>
* <i>Anagallis Phillipsii</i> , etc.	<i>Impatiens Balsamina</i>	<i>Salvia carduacea</i> and <i>S. coccinea</i>
<i>Arctotis Stœchadifolia</i> (syn. <i>grandis</i> )	<i>Kochia trichophylla</i>	<i>Scabiosa atropurpurea</i>
<i>Brachycome iberidifolia</i>	<i>Lobelia Erinus</i> vars.	<i>Schizanthus</i>
<i>Callistephus chinensis</i> (China Aster)	<i>Lychnis</i> ( <i>Agrostemma</i> )	<i>Statice Bonduellii</i>
<i>Celosia plumosa</i> var. <i>aurea</i> (Prince of Wales' Feathers or Cockscomb)	<i>Matthiola</i> (Ten-week Stock)	<i>Statice sinuata</i>
<i>Datura</i>	<i>Mesembryanthemum crystallinum</i>	<i>Tagetes</i> (various)
<i>Dianthus Heddewigii</i> and <i>D. chinensis</i> (Pinks)	<i>Mimulus tigrinus</i>	African and French Marigolds
	<i>Nemesia strumosa</i>	<i>Tropæolum aduncum</i> (Canary Creeper)
	<i>Nicotiana</i> (Tobacco Plant)	<i>Verbena</i>
		<i>Viola</i>
		<i>Zinnia elegans</i> .

\* Denotes Royal Horticultural Society's Award of Garden Merit.

## ANNUALS

### ANNUALS TO SOW IN AUGUST OR SEPTEMBER FOR BLOOMING EARLY IN THE FOLLOWING YEAR

Alyssum maritimum	Godetia	Linaria
Bartonia	Gypsophila elegans	Nigella (Love-in-a-Mist)
Calendula officinalis (Pot Marigold)	Iberis (Candytuft)	Papaver (Poppy)
Clarkia	Larkspur (Annual Del- phinium)	Salpiglossis
Centaurea Cyanus (Corn- flower)	Lathyrus odoratus (Sweet Pea)	Sweet Peas (see Lathy- rus)
Coreopsis bicolor nana, etc.		Viscaria.

### ANNUALS FOR A SUNNY POSITION

Ageratum mexicanum	Cosmos	Nigella damascena (Love- in-a-Mist)
Alonsoa Warscewiczii	Delphinium Gayanum (Larkspur)	Papaver (Poppy)
Alyssum maritimum	Eschscholzia californica	Petunia
Amarantus caudatus (Love-lies-Bleeding)	Gaillardia	Phlox Drummondii
Brachycome iberidifolia	Gilia tricolor, etc.	Portulaca grandiflora
Calendula officinale (Pot Marigold)	Godetia	Reseda odorata (Mignon- ette)
Callistephus chinensis (China Aster)	Gypsophila elegans	Salpiglossis
Celosia plumosa var. aurea (Prince of Wales' Feathers)	Helianthus annuus (Sun- flower)	Salvia
Centaurea Cyanus (Corn- flower)	Iberis (Candytuft)	Scabiosa atropurpurea
Centaurea suaveolens (Sweet Sultan)	Impatiens Balsamina	Tagetes (African and French Marigolds)
Clarkia elegans	Kochia trichophylla	Tropaeolum minus (Na- sturtiums)
Coreopsis bicolor	Lobelia Erinus	Verbena
	Lychnis (Agrostemma)	Viola
	Matthiola (Stocks)	Zinnia elegans.
	Nicotiana (Tobacco Plant)	

### ANNUALS THAT GROW QUITE WELL IN SEMI-SHADE

Alyssum maritimum	Coreopsis bicolor nana	Phlox Drummondii
Amarantus caudatus	Cosmos	Reseda (Mignonette)
Asperula	Godetia	Tagetes (African and French Marigolds)
Calendula officinalis	Iberis (Candytuft)	Tropaeolum minus (Na- sturtiums).
Centaurea suaveolens (Sweet Sultan)	Limnanthes Douglasii	
Chrysanthemum (Annual)	Malcomia maritima (Vir- ginia Stock)	
Clarkia elegans		

### ANNUALS FOR OTHER PURPOSES

For *Edgings*, see List of Edging Plants.

For the *Greenhouse*, see List of Greenhouse Plants.

For *Covering the Ground*, see List of Plants for Covering the Ground.

For *Preserving*, see List of Everlasting Flowers.

For the *Rock garden*, see List of Rock Plants.

For *Various Soils*, see List of Soils (Chalk, Clay, etc.), Plants for.

For *Various Sites and Localities* (Seaside, Town, Dry Soil, Shade, etc.), see Lists  
of Sites and Localities, Plants for.

See also Lists of Blue Flowers ; Purple, Mauve and Lilac Flowers ; Red  
Flowers ; Pink, Rose and Salmon Flowers ; Yellow Flowers, etc.



## BIENNIALS

### ANNUAL GRASSES

<i>Agrostis capillaris</i> (Bent Grass)	<i>Bromus brizæformis</i>	<i>Lagurus ovatus</i> (Hare's Tail Grass)
<i>Agrostis elegans</i> , 'laxiflora, pulchella, etc.	<i>Desmazeria sicula</i>	<i>Milium effusum</i> (Millet Grass)
<i>Briza genticulata</i> (Quaking Grass)	<i>Eragrostis Ægyptiaca</i> and <i>multiflora</i> (Love Grass)	<i>Panicum Teneriffæ</i> (syn. <i>Tricholæna rosea</i> )
<i>Briza minor</i> var. <i>gracilis</i>	<i>Hordeum jubatum</i> (Crested Barley Grass)	<i>Zea</i> (Maize).

### Cutting and Drying for Winter Decoration

Cut before the heads are fully out—between June and the end of August—while still green, with the stalks as long as possible. Tie in bunches and hang up to dry in a cool, airy room or cupboard. The grass must be cut in fine weather when quite dry.

## BIENNIALS

Biennials do not come to maturity until the second year, when they flower, produce seed and die.

Hardy biennials may be sown at a later period of the year than annuals, that is to say in May, June, or July, sometimes in August, though not later than the middle or end of September.

It is wise to sow as early as possible, as this enables the plants to become well-established before the colder weather sets in. If a frame is available early sowing is not so important.

Biennials should be raised in drills 8 to 10 inches apart in partially shaded beds in the reserve garden; as soon as they are tall enough to be handled they should be thinned out to 6 inches apart or transplanted to the same distance between plants.

Plant out in moderately good deeply-worked soil in their blooming quarters in the spring, or in October if sown in early summer and sufficiently grown.

Half-hardy biennials should be sown in boxes from March to June. They should be protected during the winter in a frame or greenhouse and planted out in their flowering positions the following spring from April to June. (See Sowing.)

# SOME USEFUL BIENNIALS

Name	Colour	Height in Inches	Flowering Period
Althæa (Hollyhock)	Various	72-120	July-September
Anchusa capensis	Blue	20	July
Antirrhinum majus (Snapdragon)	Various	Tall, medium and dwarf	April-October
Campanula Medium (Canterbury Bells)	Blue, Pink, White	36	April-July
Campanula pyramidalis (Chimney Bellflower)	Blue or White	40-70	July-September
Cheiranthus Cheiri (Wallflowers)	Yellow, Orange, Red, etc.	6-12	April-June
Coreopsis grandiflora	Golden-yellow	24-30	July-October
Cynoglossum, Blue Gem	Blue	18	June-July
Dianthus barbatus (Sweet William)	Crimson, Pink, Purple, etc., White Eye	9-18	June-September
Digitalis (Foxglove)	Rose, Purple, White	12-48	June-September
Erysimum	Yellow and Orange	12-18	July-October
Evening Primrose—See Enothera			
Forget-me-not—See Myosotis			
Foxglove—See Digitalis			
Hollyhock—See Althæa			
Lunaria annua (Honesty)	Purple, Mauve or White	24-36	May and June
Lychnis Flos-jovis (Rose Campion)	Rose-pink	18	June and July
Matthiola (Stock)	Various	12-18	June-October
Intermediate	Various	12-18	June-September
East Lothian	Various	12-18	May, June and July
Giant or Brompton	Blue	6-9	April-June
Myosotis (Forget-me-not)	Yellow or White, tinted Rose	30	June-October
Enothera (Evening Primrose)	White, Yellow, Orange, Salmon	10	May-September
Papaver alpinum (Iceland Poppy)	Violet, Blue, White, etc.	24-36	May-September
Scabiosa caucasica	Rose	2	June
Silene compacta, etc.	Blue	18	July-August
Sweet William—See Dianthus barbatus	Golden-yellow (Grey Foliage)	70	June-September
Trachelium caruleum			
Verbascum olympicum (Mullein)			
Wallflowers—See Cheiranthus Cheiri.			

NOTE.—Although some species included in this list are not actually biennials, in a true sense, they are most satisfactory when grown as such.

## • PERENNIALS (HERBACEOUS)

Herbaceous perennials may be propagated from seeds, cuttings, layers and division. The last method is the most generally used. The use of seeds, however, is becoming increasingly popular, especially in the case of new species, although it is a somewhat lengthy process, as the plants do not attain to their best for three years. Seed is best sown in the open in May or June, or if preferred, in shallow boxes in a cold frame. First-year plants must not be allowed to flower at all; second-year plants may be permitted to bloom in moderation, but they must not be allowed to go to seed.

### A SELECTION OF HARDY HERBACEOUS PERENNIALS

#### SPRING FLOWERING

Adonis amurensis and A. vernalis	Cyclamen coum, etc.	*Primula denticulata, P. obconica vars., etc.
*Anemone apennina, *blanda, etc.	Doronicum austriacum, etc.	Saxifraga Boydii, S. Burseriana, and S. Kellereri
Auriculas	Eranthis (Winter Aconite)	Wallflowers (Early) See Cheiranthus.
Bellis perennis (Daisy)	Helleborus niger and *H. orientalis	
Cheiranthus (Wall- flowers)	Iris tuberosa and *I. unguicularis	
Corydalis bracteata, etc.	Oxalis arenaria	

#### SUMMER FLOWERING

Acanthus mollis, var. latifolius, etc.	Carnations See Dianthus	*Erigeron macranthus, etc.
Achillea (various)	Catananche cærulea, etc.	Erodium (Heron's Bill)
Aconitum Napellus, etc.	Centaurea babylonica, etc.	Eryngium amethystin- um, etc.
Adenophora liliifolia, etc.	Centranthus See Kentranthus	Erysimum Perofskian- um, etc.
*Alstroemeria aurantiaca	Chelone (Shellflower)	Funkia (Plantain Lily) See Hosta
Althæa (Hollyhock)	Cimicifuga cordifolia, *Simplex, etc.	Gaillardia grandiflora, etc.
Anchusa italica, etc.	Coreopsis grandiflora, etc.	Galega officinalis, etc.
Anemone alpina, fulgens, etc.	Corydalis lutea, etc.	Gaura Lindheimeri
Anthemis montana, etc.	Delphinium (hybrids)	Geranium (various)
Anthericum Liliago	Dianthus barbatus (Sweet William)	Geum (various)
Aquilegia cærulea, etc.	Dianthus Caryophyl- lus	Gypsophila repens, etc.
Armeria maritima, etc.	*Dicentra spectabilis, etc.	Hedysarum capitatum, etc.
Artemisia argentea, etc.	Dictamnus purpureus and D. alba	Hemerocallis (Day Lily)
Asphodel lutea	Dodecatheon Media, etc.	Heuchera sanguinea, etc.
Astilbe Davidii	Echinops Ritro, etc.	Hollyhock See Althæa
Aubrietia (various)	Eremurus Bungei, etc.	Hosta (Plantain Lily)
Bocconia (Plume Poppy)		Horminum pyrenaicum
Boltonia		Hypericum crispum, etc.
Buphthalmum (Ox-eye)		Iberis sempervirens
*Campanula lactiflora, *persicifolia, <i>Telham</i> <i>Beauty</i> , etc.		Incarvillea Delavayi

\* Denotes Royal Horticultural Society's Award of Garden Merit.

## PERENNIALS

### PERENNIALS, SUMMER FLOWERING (continued)

<i>Inula ensifolia</i>	<i>Myosotis</i> (Forget-me-not)	<i>Saponaria officinalis</i> etc.
<i>I. Hookeri</i> , etc.	<i>Nepeta Mussinii</i>	<i>Saxifraga</i> (various)
<i>Iris foetidissima</i> ,	<i>Oenothera glauca</i> Fraseri, etc.	<i>Scabiosa caucasica</i> and vars., etc.
<i>I. cuprea</i> , etc.	<i>Pæonies</i>	* <i>Sedum</i> (Stonecrop) spectabile, etc.
<i>Kentranthus</i> (Valerian)	<i>Papaver orientale</i> , etc.	<i>Senecio</i> (various)
<i>Kniphofia Uvaria</i>	<i>Pentstemon</i> (various)	<i>Sidalcea candida</i> , etc.
<i>grandiflora</i> , etc.	<i>Phlox paniculata</i> , etc.	<i>Spiræa</i> (various)
<i>Lathyrus latifolius</i> , etc.	<i>Physalis Franchetii</i>	Sweet William <i>See</i>
<i>Linaria dalmatica</i> , etc.	<i>Physostegia virginiana</i>	<i>Dianthus barbatus</i>
<i>Linum flavum</i> ,	<i>Polemonium coeruleum</i> , etc.	<i>Thalictrum aquilegifolium</i> , etc.
<i>L. perenne</i> , etc.	<i>Potentilla argyrophylla</i> , etc.	<i>Trillium grandiflorum</i> , etc.
<i>Lobelia cardinalis</i> ,	<i>Primulas</i> (various)	<i>Tradescantia virginiana</i> , etc.
<i>L. fulgens</i> , etc.	<i>Pyrethrum</i> (various)	<i>Trollius asiaticus</i> , etc.
<i>Lupins</i> (various)	Red Hot Poker	<i>Valeriana officinalis</i> , etc.
<i>Lychnis chalconica</i> , etc.	<i>See Kniphofia</i>	<i>Veronica</i> (various)
<i>Lythrum Salicaria</i> , etc.	* <i>Rudbeckia speciosa</i> , etc.	<i>Viola</i> (various).
<i>Malva moschata</i>	<i>Salvia splendens</i> vars., etc.	
<i>Meconopsis cambrica</i> , etc.		
<i>Mimulus luteus</i> , etc.		
* <i>Monarda didyma</i>		
<i>Cambridge Scarlet</i>		

### AUTUMN FLOWERING

<i>Aconitum Fischeri</i> , etc.	<i>Cimicifuga simplex</i>	<i>Pentstemon</i> (various)
<i>Althæa</i> (Hollyhock)	<i>Echinacea purpurea</i>	<i>Phlox paniculata</i> , etc.
<i>Anchusa italica</i> vars.	<i>Gaillardia grandiflora</i>	<i>Physalis Franchetii</i>
* <i>Anemone japonica</i>	<i>Galega officinalis</i> , etc.	<i>Physostegia virginiana</i>
* <i>Anthemis tinctoria</i> ,	<i>Gaura Lindheimeri</i>	<i>Salvia</i> (various)
<i>Perry's</i> var.	<i>Geum</i> (various)	<i>Scabiosa</i> (various)
<i>Artemisia lactiflora</i>	<i>Helenium autumnale</i> , etc.	<i>Senecio Clivorum</i> , etc.
* <i>Aster Amellus</i> King	<i>Helianthus</i> (various)	<i>Solidago</i> (Golden Rod)
<i>George</i>	<i>Hollyhock</i> ( <i>Althæa</i> )	<i>Stokesia</i> (Early)
<i>Aster Novæ-angliæ</i>	<i>Hypericum tomentosum</i>	<i>Valeriana officinalis</i> , etc.
<i>Aster Novi-belgii</i> and vars.	<i>Lupins</i> (various)	<i>Viola</i> (various)
<i>Bocconia</i> (Plume Poppy)	<i>Oenothera glauca</i>	
<i>Chrysanthemums</i>	Fraseri, etc.	

### WINTER FLOWERING

<i>Anemone vernalis</i>	<i>Helleborus niger</i>	<i>Primula E. R. Janes</i>
<i>Asters</i> ( <i>Michaelmas</i>	(Christmas Rose)	and <i>P. Wanda</i>
<i>Daisy</i> ) various	* <i>Iris unguicularis</i>	Red Hot Poker,
<i>Christmas Rose</i>	<i>Kniphofia longicollis</i>	<i>See Kniphofia</i>
( <i>Helleborus niger</i> )	<i>Michaelmas Daisy</i>	<i>Salvia</i> (various)
<i>Cyclamen alpinum</i> and	<i>See Aster</i>	<i>Vinca difformis</i>
<i>C. cilicicum</i>	<i>Primula acaulis helio</i>	
	<i>lilac</i> and <i>Comb</i> hybrids	

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NOTE.—See also Lists arranged under Colours—Blue, Purple, Mauve, Red, Pink, Yellow Flowers, etc., pages 65-74, and List of Plants that will grow in the shade.

## PERENNIALS

### A SELECTION OF TALL, MEDIUM AND DWARF PERENNIALS

#### TALL (Over 3 feet)

Aconitum Napellus and Wilsonii	4-5 ft.	Eremurus Elwesianus, etc.	7-8 ft.
Anchusa italica	3-4 ft.	Helenium Riverton Gem	3-4 ft.
Aster Novæ-angliæ rubra, etc.	3-5 ft.	Hollyhock (Althæa rosea)	6-10 ft.
Aster Novi-Belgii Anita Ballard, Queen of the Lilacs, etc.	4-5 ft.	Kniphofia (Red Hot Poker)	4 ft.
Campanula lactiflora	4-5 ft.	Meconopsis Wallichii	3-6 ft.
Delphinium (various)	3-6 ft.	Salvia pratensis, etc.	3-4 ft.
		Thalictrum dipterocarpum	4-6 ft.
		Verbascum longifolium	3-6 ft.
		Veronica exalta pannosum	4-4 ft.

#### MEDIUM (18 inches to 3 feet)

Alstroemeria hæmantha	2½-3 ft.	Geranium	1-3 ft.
Antirrhinum majus (various)	1-3 ft.	Geum Mrs. Bradshaw, etc.	2 ft.
Aquilegia Skinneri	2 ft.	Helenium cupreum	1½-2 ft.
Aster Amellus Ultramarine, etc.	2 ft.	Heuchera sanguinea, etc.	1½ ft.
Aster Novi-Belgii Little Boy Blue, etc.	2 ft.	Incarvillea Delavayi, etc.	2 ft.
Campanula persicifolia vars.	2-2½ ft.	Kentranthus ruber, etc.	2 ft.
Carnations, see Dianthus		Lobelia cardinalis, etc.	2 ft.
Cheiranthus Cheiri	1½-2 ft.	Lychnis chalcedonica	2½ ft.
Chrysanthemums (various)	1½-3 ft.	Mimulus cardinalis	2 ft.
Delphinium cardinale, etc.	1½-3 ft.	Pæonia officinalis	2½ ft.
Dianthus barbatus	1½ ft.	Pentstemons (various)	1½-2½ ft.
Dianthus Caryophyllus (various)	1½ ft.	Phlox paniculata (various)	1½-2½ ft.
Echinacea purpurea	1-3 ft.	Primulas (various)	1½ ft.
Erodium (Heron's Bill)	1½ ft.	Scabiosa (various)	1½-2 ft.
Eryngium alpinum, etc.	2-3 ft.	Spiræa palmata	2 ft.
Gaillardia (various)	2-2½ ft.	Sweet William, see Dianthus	
		Wallflowers, see Cheiranthus	

#### DWARF (Up to 12 inches)

Agrostemma hybrida Walkeri	12 in.	Horminum pyrenaicum	10 in.
Anemone apennina, etc.	6-12 in.	Iris germanica, etc.	12 in.
Armeria latifolia	12 in.	Lithospermum	4 in.
Asclepias tuberosa	12 in.	Lychnis fulgens	6-12 in.
Aubrietia Vindictive, etc.	4 in.	Mertensia maritima	4 in.
Bellis perennis (various)	6 in.	Myosotis alpestris	12 in.
Campanula carpatica, etc.	9 in.	Pulmonaria angustifolia azurea	12 in.
Ceratostigma plumbaginoides	9 in.	Saxifraga (various)	6 in.
Corydalis bulbosa, nobilis, etc.	9 in.	Silene virginica	9 in.
Delphinium nudicaule	12 in.	Stokesia cyanea	9-12 in.
Dianthus (various)	8 in.	Veronica longifolia	12 in.
Geranium (dwarf)	6-12 in.	Viola cornuta (various)	6 in.

#### PERENNIALS THAT BLOOM OVER A LONG PERIOD

Agrostemma	Delphinium	Lychnis
Anchusa	Erigeron	Monarda didyma
Anemone japonica	Gaillardia aristata	Pentstemons
Antirrhinum	Gaura	Phlox paniculata
Aster hybridus luteus	Geranium	Polygonum
Bellis perennis (Daisy)	Geum	Potentilla
Bupththalmum salici- folium [mum]	Heuchera	Tradescantia
Chrysanthemum maxi-	Kniphofia	Verbascum
	Lupins	• Viola cornuta.

NOTE.—See also Lists under Colours—Red, Blue, Yellow, etc.

## PERENNIALS

### SOME PERENNIALS WITH COLOURED FOLIAGE

Plant	Colour of Foliage	Height
<i>Acæna glauca</i> , <i>A. Buchanani</i> , etc.	Grey, Green & Bronze (Summer)	2-6 in.
<i>Achillea argentea</i> . . . . .	Silvery-grey (Summer) . . . . .	3-4 in.
<i>Alyssum saxatile</i> . . . . .	Silvery-grey (Summer) . . . . .	6-10 in.
<i>Artemisia lanata</i> . . . . .	Silvery (Summer) . . . . .	6 in.
<i>Centaurea dealbata</i> . . . . .	Silvery (Summer) . . . . .	24 in.
<i>Cineraria Maritima</i> . . . . .	Silvery (Summer) . . . . .	18 in.
<i>Dianthus</i> (various) . . . . .	Grey (Summer) . . . . .	6-9 in.
<i>Eriogonum</i> . . . . .	Silvery-grey (Summer) . . . . .	6-12 in.
<i>Eryngium</i> (various) . . . . .	Silvery (Summer) . . . . .	18-40 in.
<i>Gypsophila</i> (various) . . . . .	Silvery (Summer) . . . . .	3-30 in.
<i>Helichrysum bellidioides</i> . . . . .	Silvery (Summer) . . . . .	5 in.
<i>Jankæa Heldreichii</i> (syn. <i>Ramondia Heldreichii</i> ) . . . . .	Grey (Summer) . . . . .	3-4 in.
<i>Lysimachia nummularia aurea</i>	Golden (Summer) . . . . .	Creepers
<i>Nepeta</i> (various) . . . . .	Silvery (Summer) . . . . .	18 in.
<i>Oxalis enneaphylla</i> . . . . .	Grey (Summer) . . . . .	6 in.
Pinks, <i>see</i> <i>Dianthus</i>		
<i>Thalictrum adiantifolium</i> . . . . .	Coloured (Summer) . . . . .	12 in.
<i>Thymus Serpyllum lanuginosus</i>	Grey (Summer) . . . . .	3 in.
<i>Veronica intana</i> . . . . .	Silvery (Summer) . . . . .	6-9 in.
<i>Wahlenbergia Pumilio</i> . . . . .	Grey (Summer) . . . . .	3-4 in.

## COLOUR CONTINUITY

### SOME SPRING AND EARLY SUMMER FLOWERS

* <i>Adonis vernalis</i>	<i>Dianthus barbatus</i>	<i>Nigella</i> (Autumn sown)
<i>Alyssum saxatile</i>	(Sweet William)	* <i>Oxalis arenaria</i>
<i>citrinum</i>	<i>Doronicum austriacum</i> ,	<i>Primulas</i> (various)
* <i>Anemone apennina</i> ,	etc.	* <i>Pulmonaria</i> (various)
<i>blanda</i> , etc.	<i>Eranthis</i> (Winter	<i>Ranunculus</i>
* <i>Arabis</i>	<i>Aconite</i> )	<i>Saxifraga Boydii</i> , <i>Bur-</i>
<i>Aquilegia</i> (Columbine)	<i>Eschscholzia</i>	<i>seriana</i> , <i>Kellereri</i> , etc.
* <i>Aubrietia</i>	(Autumn sown)	<i>Sisyrinchium filifolium</i>
<i>Bellis perennis</i> (Daisy)	* <i>Gentiana acaulis</i>	and <i>grandiflorum</i>
<i>Calendula</i>	<i>Godetia</i> (Autumn sown)	Sweet William, <i>see</i>
(Autumn sown)	<i>Helleborus orientalis</i>	<i>Dianthus barbatus</i>
<i>Cheiranthus Cheiri</i>	<i>rubra</i>	<i>Violas</i>
(Wallflower)	<i>Iris tuberosa</i> ,	* <i>Wallflower</i> (Siberian)
Cornflower	<i>unguicularis</i> , etc.	<i>Wallflowers</i> (various)
(Autumn sown)	* <i>Myosotis</i> (Forget-me-	
<i>Corydalis bracteata</i> ,	not)	
etc.		

### SOME BEAUTIFUL SUMMER FLOWERS

<i>Achillea Millefolium</i> ,	<i>Astilbe Granat</i> and	<i>Chrysanthemum</i>
* <i>Lewisii</i> , etc.	<i>Davidii</i>	(Annual)
<i>Ageratum mexicanum</i>	<i>Begonia</i> (various)	* <i>Clarkia</i>
<i>Alstr�meria aurantiaca</i>	<i>Calceolaria</i>	<i>Coreopsis</i>
<i>Alth�a rosea</i>	<i>Calendula</i> (Pot Mari-	<i>Cornflower, see</i>
(Hollyhock)	gold)	<i>Centaurea Cyanus</i>
<i>Anchusa italica</i>	<i>Campanula</i> (various)	<i>Delphinium</i>
<i>Morning Glory</i>	<i>Carnations, see</i> <i>Dianthus</i>	<i>Dianthus barbatus</i>
* <i>Anthemis tinctoria</i>	<i>Caryophyllus</i>	(Sweet William)
<i>Antirrhinum</i>	<i>Centaurea Cyanus</i>	<i>Dianthus Caryophyllus</i>
(Snapdragon)	(Cornflower)	(Carnation)

\* Denotes plants that may be grown in the Rock Garden.

## PERENNIALS

### SOME BEAUTIFUL SUMMER FLOWERS (continued)

Echinops Ritro	Hollyhock, <i>see</i> Althæa	Red Hot Poker,
Erigeron	Kniphofia	<i>see</i> Kniphofia
Eryngium	(Red Hot Poker)	Roses
Eschscholzia	Lathyrus odoratus	Scabiosa (Scabious)
californica	(Sweet Pea)	Stocks (various)
Gaillardia grandiflora	Lilies (various)	Sweet Peas,
Geranium	Lobelia	<i>see</i> Lathyrus
*Geum	Lupins	Sweet William, <i>see</i>
Gladiolus	Nepeta Mussinii	Dianthus barbatus
Godetia	Nigella (Love-in-a-Mist)	Tagetes (African and
Gypsophila	Pentstemon	French Marigolds)
Heliotropium	Phlox	Viola
(Cherry Pie)	Papaver (Poppy)	Zinnia
Heuchera sanguinea		

### SUMMER FLOWERS THAT LAST INTO AUTUMN

Anemone japonica	Cornflower, <i>see</i>	Red Hot Poker,
*Anthemis tinctoria	Centaurea Cyanus	<i>see</i> Kniphofia
Aster Amellus	Gentiana (various)	Roses
(Michaelmas Daisy)	Gladiolus	Rudbeckia
Æanna (Indian Shot)	Kniphofia	Scabiosa
Centaurea Cyanus	(Red Hot Poker)	Sweet Peas,
(Cornflower)	Lathyrus odoratus	<i>see</i> Lathyrus
Centaurea moschata	(Sweet Pea)	Sweet Sultan, <i>see</i>
(Sweet Sultan)	Phlox (various)	Centaurea Moschata
*Clarkia		*Violas

### SOME AUTUMN FLOWERS

Aconitum Wilsonii	Dahlias	Oxalis lobata
Anemone japonica	*Gentiana (various)	Primula (various)
*Anthemis tinctoria	Gladiolus	Red Hot Poker,
Aster (Michaelmas	Golden Rod, <i>see</i>	<i>see</i> Kniphofia
Daisy) various	Solidago	Schizostylis coccinea
Calendula, <i>Lemon</i>	Helenium <i>Moerheim</i>	Solidago (Golden Rod)
<i>Queen &amp; Orange King</i>	<i>Beauty, etc.</i>	Stocks (various), <i>see</i>
Centaurea Cyanus	Helianthus	Matthiola
(Cornflower)	Kniphofia	Sweet Peas, <i>see</i>
Chrysanthemum	(Red Hot Poker)	Lathyrus
(various)	Lathyrus odoratus	Tropæolum
Clarkia	(Sweet Pea)	(Nasturtiums)
Cosmos	Lupins (various)	Violas
*Cyclamen alpinum	Matthiola (Stocks)	

### SOME WINTER FLOWERS

Anemone vernalis	Galanthus Elwesii	Primula acaulis <i>helio</i>
Christmas Rose, <i>see</i>	(Snowdrop)	<i>lilac hybrid, E. R.</i>
Helleborus	*Helleborus niger	<i>Janes and Wanda</i>
*Colchicum luteum,	(Christmas Rose)	*Snowdrop, <i>see</i> Galan-
Steveni, Troodii, etc.	*Iris alata & reticulata	thus Elwesii
*Crocus Clusi, Hyemalis,	Pansies (various)	*Vinca difformis
etc.	Periwinkle, <i>see</i> Vinca	(Periwinkle)

\* Denotes plants that may be grown in the Rock Garden.

For TREES and SHRUBS, see Calendar of Bloom, page 85.



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CALLISTEPHUS (Ray Asters).

M.M.S.

E.





# FLOWER COLOURS

## BLUE FLOWERS

For Purple, Mauve, Lilac and Violet Shades, see separate List, page 67.

\* Denotes Award of Garden Merit, Royal Horticultural Society,

Where "various" is placed after the name of a flower, it indicates that, among other colours, Blue varieties are available.

## HARDY ANNUALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
* <i>Achusa myosotidiflora</i> . . . . .	10	—	—	July
<i>Asperula setosa</i> (Woodruff) . . . . .	12	—	—	June-September
<i>Charies heterophylla</i> (Cape Aster) . . . . .	6	—	—	June-August
<i>Centaurea Cyanus</i> (Cornflower) . . . . .	—	20	—	July-October
Cornflower. See <i>Centaurea Cyanus</i> .				
<i>Delphinium Gayanum</i> (Larkspur) :—				
syn. <i>Ajacia</i> vars. . . . .	—	12-30	—	June-September
<i>consolida</i> vars. . . . .	—	24-30	—	June-September
<i>grandiflorum</i> var. <i>Blue Butterfly</i> . . . . .	—	12-18	—	July-October
Larkspur. See <i>Delphinium L. Gayanum</i>				
<i>Lathyrus odoratus</i> (various) Sweet Peas . . . . .	—	—	30-7.	July-October
<i>Linum usitatissimum</i> (Flax) . . . . .	—	24	—	July-October
Love-in-a-Mist. See <i>Nigella</i> .				
<i>Lupinus Hartwegii</i> (Lupins) . . . . .	—	24	—	June-October
<i>Lychnis coelirosa</i> (Viscaria) . . . . .	12	—	—	June-September
<i>L. c.</i> var. <i>cœrulea</i> . . . . .	12	—	—	July-September
<i>Nemophila insignis</i> (Californian Bluebell) . . . . .	3-12	—	—	July-September
<i>Nicandra physaloides</i> (Apple of Peru) . . . . .	—	24	—	July-September
<i>Nigella damascena</i> var. <i>Miss Jekyll</i> (Love-in-a-Mist) . . . . .	12	—	—	June-September
* <i>Phacelia campanularia</i> . . . . .	9	—	—	June-August
<i>Salvia Horminum</i> <i>Bluebeard</i> . . . . .	—	18	—	July-September
<i>Trachymene cœrulea</i> (Lace-flower) . . . . .	—	12-30	—	July-September

## HALF-HARDY ANNUALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
<i>Ageratum Blue Star</i> (Floss Flower) . . . . .	6-10	—	—	May-September
<i>Ageratum Imperial Dwarf</i> . . . . .	5	—	—	May-September
<i>Ageratum Swanley Blue</i> . . . . .	10	—	—	May-September
* <i>Anagallis Phillipsii</i> . . . . .	6-9	—	—	All Summer
<i>Arctotis stœchadifolia</i> syn. <i>grandis</i> . . . . .	—	24	—	Summer
<i>Brachycome, Blue Star</i> (Swan River Daisy) . . . . .	10	—	—	All Summer
<i>Browallia elata</i> (Purple-blue) . . . . .	12	—	—	July-September
<i>Callistephus chinensis</i> (China Aster) . . . . .	—	9-24	—	Autumn
<i>Lobelia Erinus</i> vars. . . . .	6-12	—	—	July-September
<i>Lobelia tenuior</i> . . . . .	12	—	—	July-September
<i>Nemesia strumosa</i> <i>Blue Gem</i> . . . . .	12	—	—	June-September
<i>Nigella hispanica</i> (Love-in-a-Mist) . . . . .	12	—	—	June-September
<i>Verbena</i> (various) . . . . .	—	12-24	—	Summer & Autumn

## BLUE FLOWERS (continued)

### PERENNIALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
Aconitum Napellus (Monkshood) . . . . .	-	-	48-60	June-October
Adenophora liliifolia (Gland Bellflower) . . . . .	-	12-36	-	June-August
Anchusa italica ( <i>Dropmore</i> , <i>Opal</i> and <i>Pride of Dover</i> ) . . . . .	-	-	36-50	June-October
*Anemone apennina . . . . .	9	-	-	March-May
Aquilegia [various] (Columbine) . . . . .	-	12-18	-	May-July
Aster Amellus, Framfieldii & *King George (Michaelmas Daisy) . . . . .	-	24	-	Autumn
Aster Amellus, <i>Ultramarine</i> . . . . .	-	24-30	-	Autumn
Aster Novi-Belgii <i>Anita Ballard</i> . . . . .	-	-	48-55	Autumn
Aster Novi-Belgii <i>Climax</i> . . . . .	-	-	60	Autumn
Aster Novi-Belgii <i>Little Boy Blue</i> . . . . .	-	24-30	-	Autumn
Campanula carpatica vars. (Bellflower) . . . . .	9	-	-	June-September
*Campanula lactiflora . . . . .	-	-	48-60	June-August
Campanula latifolia vars. . . . .	-	-	48	May-October
*Campanula persicifolia <i>Telham Beauty</i> . . . . .	-	24-30	-	May-August
Campanula rotundifolia ( <i>Star Bluebell</i> ) . . . . .	12	-	-	May-October
Catananche coerulea (Cupidone) . . . . .	-	30	-	July-August
Centaurea montana (Knapweed) . . . . .	-	24-30	-	July-August
Columbine. See Aquilegia. . . . .	-	-	-	-
Delphinium (various) . . . . .	-	-	60	July-August
Echinops Ritro (Globe Thistle) . . . . .	-	36	-	August-September
Eryngium alpinum, E. amethystinum, and E. planum (Sea Holly) . . . . .	- 2	4-30	-	July-September
Forget-me-not. See Myosotis. . . . .	-	-	-	-
Geranium grandiflorum, etc. (Crane's Bill) . . . . .	-	18	-	June-August
Horminum pyrenaicum . . . . .	10	-	-	June-August
Iris germanica, etc. (Blue Flag) . . . . .	12	-	-	June
Linum perenne (Perennial Flax) . . . . .	-	12-18	-	May-October
Lithospermum (Gromwell) . . . . .	4	-	-	May-September
Lobelia syphilitica . . . . .	-	24	-	Summer
Lupinus polyphyllus, etc. (Lupins) . . . . .	-	18-36	-	May-July
Meconopsis Wallichii . . . . .	-	-	36-72	Summer
Mertensia maritima (Oyster Plant) . . . . .	4	-	-	Summer
Mertensia virginica . . . . .	-	24	-	April-May
Michaelmas Daisy. See Aster. . . . .	-	-	-	-
Myosotis alpestris (Forget-me-not) . . . . .	12	-	-	Spring & Summer
Polemonium coeruleum (Jacob's Ladder) . . . . .	12	-	-	Summer
Pulmonaria angustifolia azurea (Lungwort) . . . . .	12	-	-	March
*Salvia pratense superba and uliginosa . . . . .	-	-	40-48	July-October
Scabiosa caucasica . . . . .	-	18-24	-	June-September
Statice Gmelina and latifolia (Sea Lavender) . . . . .	-	12-24	-	June-August
Stokesia cyanea (Stoke's Aster) . . . . .	9-12	-	-	Early Autumn
Tradescantia virginiana (Spiderwort) . . . . .	-	18	-	June-September
Veronica exaltata (Speedwell) . . . . .	-	-	40-48	June-August
Veronica longifolia, etc. (Speedwell) . . . . .	12	-	-	July-September
Violas (various) . . . . .	6	-	-	All Summer

For Shrubs and Trees see separate list, page 80.

## FLOWER COLOURS

### PURPLE, MAUVE, LILAC AND VIOLET FLOWERS

For Blue Shades, *see* separate List of Blue Flowers, page 65.

Where "various" is placed after the name of a flower, it indicates that, among other colours, Purple, Mauve, Lilac and Violet varieties are available.

#### HARDY ANNUALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
<i>Alyssum maritimum</i> <i>Lilac Queen</i> . . .	6	—	—	Summer
Candytuft. <i>See</i> <i>Iberis umbellata</i> .	—	—	—	—
<i>Centaurea suaveolens</i> (Sweet Sultan)— Purple	—	20	—	July-October
<i>Clarkia elegans</i> —Purple . . . . .	—	24	—	July-October
<i>Clarkia pulchella</i> fl. pl.—Purple . . .	—	18	—	July-October
<i>Collinsia bicolor</i> —Purple . . . . .	12	—	—	May-July
<i>Delphinium</i> [Various] (Larkspur) . . .	—	12-36	—	June-September
<i>Gilia tricolor</i> —Purple . . . . .	10	—	—	June-October
<i>Iberis umbellata</i> (Candytuft)—Purple .	12	—	—	July-October
<i>Lathyrus odoratus</i> [various] (Sweet Peas)	—	—	36-72	July-October
<i>Linaria</i> [various] (Toadflax)—Purple .	—	18	—	July-October
<i>Lupinus</i> (various) . . . . .	—	12-36	—	June-October
<i>Malcomia maritima</i> (Virginian Stock)— Lilac	8	—	—	July-October
<i>Matthiola</i> [various] (Stocks) . . . . .	12	—	—	July-August
<i>Nigella damascena</i> (Love-in-a-Mist)— Purple	—	18	—	June-September
<i>Senecio elegans</i> (Groundsel)—Purple .	—	12-20	—	June-October
Sweet Sultan. <i>See</i> <i>Centaurea</i> <i>suaveolens</i> .	—	—	—	—
<i>Xeranthemum annuum</i> (Immortelles or Everlasting Flowers)—Purple	12	—	—	July-September

#### HALF-HARDY ANNUALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
<i>Amarantus caudatus</i> (Love-Lies-Bleed- ing)—Purple	—	12-36	—	July-October
<i>Callistephus chinensis</i> [various] (China Asters)	9-12	12-24	—	Autumn
<i>Datura fastuosa</i> (Thorn Apple)—Purple	—	30	—	July-September
<i>Datura Tatula</i> (Thorn Apple)—Deep Lilac	—	24	—	July-September
<i>Heliotropium peruvianum</i> vars. (Cherry Pie or Heliotrope)—Lilac and Mauve	—	24	—	May-September
<i>Nemesia versicolor</i> —Mauve . . . . .	12	—	—	June-August
<i>Petunias</i> (various) . . . . .	—	12-24	—	Summer & Autumn
<i>Salpiglossis sinuata</i> —Purple . . . . .	—	20	—	Summer & Autumn
<i>Salvia carduacea</i> —Lilac . . . . .	12	—	—	Summer & Autumn
<i>Scabiosa atropurpurea</i> [various] (Sweet Scabious)	—	24-36	—	All Summer
<i>Schizanthus</i> (various) . . . . .	—	18-36	36-48	June-September
<i>Statice sinuata</i> (Sea Lavender)—Mauve	—	16	—	August-September
<i>Verbena</i> (various) . . . . .	—	12-24	—	Summer & Autumn
<i>Viola</i> (various) . . . . .	6	—	—	All Summer

# PURPLE, MAUVE, LILAC AND VIOLET FLOWERS (ctd.)

## PERENNIALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
<i>Acanthus mollis</i> (Bear's Breech)—Lilac	—	—	40	August
<i>Althæa rosea</i> [various] (Hollyhock)	—	—	72-120	August-September
<i>Antirrhinum</i> [various] (Snapdragon)	—	12-36	—	Summer
<i>Aquilegia</i> [various] (Columbine)	—	24	—	May-July
<i>Aster Amellus</i> (Michaelmas Daisy):—				
Beauty of Ronsdorf—Light Purple	—	24	—	September-October
Framfieldii—Purple	—	24	—	September-October
Cordifolius elegans—Lilac	—	—	48	September-October
Nova-Angliæ <i>Rycroft Purple</i>	—	—	48	September-October
Novi-Belgii <i>Mother of Pearl</i> —Purple-mauve	—	—	36-45	September-October
Novi-Belgii <i>Queen of Lilacs</i>	—	—	48	September-October
<i>Aubrietia</i> [various] (Rock Cress)	4	—	—	April-June
<i>Campanula latifolia macrantha</i> (Bell-flower)—Purple	—	36	—	June-July
Carnation. See <i>Dianthus</i> .				
<i>Chelone Lyonii</i> and <i>obliqua</i> —Purple	—	30-36	—	Late Summer
<i>Chrysanthemum</i> (various)	—	36	—	Autumn
Columbine. See <i>Aquilegia</i> .				
<i>Corydalis bulbosa</i> (Fumitory)—Purple	9	—	—	May
<i>Delphinium</i> (various)	—	—	36-72	July-September
<i>Dianthus barbatus</i> (Sweet William)—Purple	—	18	—	Summer
<i>Dianthus Caryophyllus</i> (Carnation)—Mauve	—	18	—	Summer
<i>Dodecatheon Media giganteum</i> (American Cowslip)—Lilac	12	—	—	May-June
<i>Echinacea purpurea</i> —Purple	—	36	—	August & Sept.
<i>Erigeron speciosus</i> (Fleabane)—Purple-lilac	—	30	—	May-October
Funkia. See <i>Hosta</i> .				
<i>Geranium</i> [various] (Crane's Bill)	—	12-36	—	June-September
<i>Galega officinalis</i> —Pale Blue and White	—	30-36	—	July-September
Hollyhock. See <i>Althæa rosea</i> .				
<i>Hosta Sieboldiana</i> (Funkia)—Lilac	—	12-18	—	July-August
<i>Linaria purpurea</i> (Toadflax)—Purple	—	12-24	—	June-October
<i>Lupinus</i> (various)	—	30-36	36-40	May-July
<i>Lythrum virgatum</i> (Purple Loosestrife)	—	36	—	Summer
<i>Nepeta Mussinii</i> (Catmint)—Lilac	12	—	—	May-October
<i>Phlox paniculata</i> vars.—Lilac, Purple, Violet, Mauve	—	30-36	—	July-September
<i>Primula Beesiana</i> , etc.—Purple	—	24-30	—	May-June
Snapdragon. See <i>Antirrhinum</i> .				
<i>Statice latifolia</i> (Sea Lavender)—Lilac	—	24	—	July-September
Sweet William. See <i>Dianthus barbatus</i> .				
<i>Thalictrum</i> [various] (Meadow Rue)	—	36-48	48-72	June-September
<i>Violas</i> (various)	6	—	—	Spring and Summer

See also Shrubs and Trees, page 80.

## FLOWER COLOURS

### RED FLOWERS

For Pink, Rose and Salmon Shades, see separate list, page 71.

Where "various" is placed after the name of a flower, it indicates that, among other colours, Red varieties are available.

### HARDY ANNUALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
<i>Chrysanthemum</i> (various) . . . . .	—	24-30	—	July-September
<i>Clarkia elegans</i> (Crimson) . . . . .	—	24	—	July-October
<i>Emilia flammea</i> (Orange-scarlet) . . . . .	—	12-18	—	July-September
<i>Gaillardia Lorenziana</i> . . . . .	—	12-18	—	July-October
<i>Godetia</i> . . . . .	12	—	—	July-October
<i>Helichrysum bracteatum</i> . . . . .	—	36	—	July-October
<i>Iberis umbellata</i> . . . . .	12	—	—	July-October
<i>Kochia trichophylla</i> . . . . .	—	30-36	—	Summer & Autumn
<i>Lathyrus odoratus</i> [various] (Sweet Peas) . . . . .	—	—	36-72	July-October
<i>Linum catharticum</i> (Carmine Flax) . . . . .	12	—	—	July-October
<i>Lupinus hybridus atropurpureus</i> . . . . .	—	24-30	—	July-October
<i>Lychnis fulgens</i> . . . . .	12	—	—	July-September
<i>Malcomia maritima</i> (Virginian Stock) . . . . .	8	—	—	July-October
<i>Malope grandiflora</i> . . . . .	—	15-24	—	June-October
<i>Matthiola</i> [various] (Stocks) . . . . .	12	—	—	July-August
<i>Papaver</i> [various] (Poppy) . . . . .	—	24	—	June-September
<i>Polygonum orientale</i> . . . . .	—	30-36	—	July-October
<i>Saponaria calabrica</i> . . . . .	6	—	—	June-October
Stocks. See <i>Matthiola</i> .				
Sweet Peas. See <i>Lathyrus</i> .				
<i>Tropæolum</i> [various] ( <i>Nasturtium</i> ) . . . . .	12	—	—	July-September

### HALF-HARDY ANNUALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
<i>Alonsoa linifolia</i> and <i>Warszewiczii</i> . . . . .	—	18	—	July and August
<i>Anagallis grandiflora</i> (Scarlet Pimpernel) . . . . .	6	—	—	All Summer
<i>Begonia</i> (various) . . . . .	9-12	—	—	June-September
<i>Cosmos bipinnatus præcox</i> . . . . .	—	—	30-70	Summer & Autumn
<i>Dianthus chinensis</i> , vars. (Pinks) . . . . .	9-12	—	—	July-October
<i>Martynia fragrans</i> . . . . .	12	—	—	July-September
<i>Nicotiana glauca</i> [various] (Tobacco Plant) . . . . .	—	18-30	—	August-October
<i>Perilla nankinensis</i> (Purple Foliage) . . . . .	—	18-24	—	June-October
<i>Phlox Drummondii</i> (various) . . . . .	12	—	—	June-October
Pinks. See <i>Dianthus</i> .				
<i>Portulaca grandiflora</i> . . . . .	6	—	—	July-September
<i>Salpiglossis sinuata</i> vars. (various) . . . . .	—	18	—	July-September
<i>Salvia coccinea</i> . . . . .	—	18-24	—	June-September
<i>Scabiosa atropurpurea</i> [various] (Sweet Scabious) . . . . .	—	24-36	—	All Summer
<i>Schizanthus lobatus</i> . . . . .	—	18-36	36-48	June-September
<i>Verbenæ</i> (Crimson and Scarlet vars.) . . . . .	—	12-24	—	Summer & Autumn

# RED FLOWERS (continued)

## PERENNIALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
<i>Agrostemma hybrida</i> Walkeri . . . . .	12	—	—	June-September
<i>Alstroemeria hæmantha</i> . . . . .	—	30-36	—	May-August
<i>Althæa rosea</i> (Hollyhocks) . . . . .	—	—	72- 120	August-September
<i>Anemone fulgens</i> (Scarlet) . . . . .	6-12	—	—	May-June
<i>Antirrhinum majus</i> [various] (Snapdragon)	—	12-36	—	Summer
<i>Armeria latifolia</i> (Giant Thrift) . . . . .	12	—	—	May-July
<i>Aster Novæ-Angliæ</i> Mrs. J. F. Rayner, and <i>rubra</i> (Michaelmas Daisy)	—	—	36-72	September-October
<i>Aubrietia Vindictive</i> (Rock Cress) . . . . .	4	—	—	Spring
<i>Bellis perennis</i> [various] (Daisy) . . . . .	6	—	—	April-June
Carnations, <i>see</i> <i>Dianthus</i>				
<i>Cheiranthus Cheiri</i> (Wallflowers) . . . . .	—	18-24	—	April-June
<i>Chrysanthemums</i> (various) . . . . .	—	18-36	—	Autumn
<i>Delphinium cardinale</i> . . . . .	—	18-36	—	June-August
<i>Delphinium nudicaule</i> . . . . .	—	12	—	May and June
<i>Dianthus barbatus</i> (Sweet William) . . . . .	—	18	—	Summer
<i>Dianthus Caryophyllus</i> [various] (Carnation)	—	18	—	Summer
<i>Dianthus plumarius</i> (Pink) . . . . .	8	—	—	June
<i>Gaillardia</i> (various) . . . . .	—	30	—	May & July
<i>Geranium</i> (various) . . . . .	6-12	12-30	—	June-September
<i>Geum coccineum</i> , Mrs. Bradshaw, etc.	—	24	—	May-July
<i>Helenium cupreum</i> . . . . .	—	18-24	—	July-September
<i>Helenium Riverton Gem</i> . . . . .	—	—	36-40	July-September
<i>Heuchera sanguinea</i> . . . . .	—	18	—	May-September
Hollyhock. <i>See</i> <i>Althæa rosea</i> .				
<i>Kentranthus ruber</i> (Valerian) . . . . .	—	24	—	Summer
<i>Kniphofia uvaria</i> (Red Hot Poker) . . . . .	—	—	48	June-October
<i>Lathyrus grandifolius</i> (Perennial Sweet Pea)	—	—	48-96	Summer
<i>Lobelia cardinalis</i> and <i>fulgens</i> . . . . .	—	24-30	—	Summer
<i>Lychnis chalcidonica</i> (Jerusalem Cross)	—	30	—	June-September
<i>Lychnis fulgens</i> (Scarlet Campion) . . . . .	6-12	—	—	June-September
Michaelmas Daisy. <i>See</i> <i>Aster</i> .				
<i>Mimulus cardinalis</i> . . . . .	—	24	—	June & July
<i>Monarda didyma</i> <i>Cambridge Scarlet</i> (Bee's Balm)	—	36	—	June-September
<i>Pæonia officinalis</i> fl. pl. . . . .	—	30	—	May
<i>Papaver orientale</i> (Oriental Poppy) . . . . .	—	24-30	—	May & June
<i>Pentstemons</i> (various) . . . . .	—	18-30	—	June-October
<i>Phlox paniculata</i> (various) . . . . .	—	15-30	—	July-September
Pinks. <i>See</i> <i>Dianthus plumarius</i> .				
<i>Potentilla atrosanguinea</i> . . . . .	—	24	—	June-September
<i>Primula</i> (various) . . . . .	—	18	—	Early Summer
<i>Silene virginica</i> (Fire Pink) . . . . .	9	—	—	Summer
<i>Spiræa palmata</i> (Meadow Sweet) . . . . .	—	24	—	July & August
Sweet William. <i>See</i> <i>Dianthus barbatus</i> .				
<i>Tradescantia virginica rubra</i> . . . . .	—	20	—	June-September

See also List of Shrubs and Trees, page 85.

## FLOWER COLOURS

### PINK, ROSE AND SALMON FLOWERS

For Red Flowers, see separate List page 69.

Where "various" is placed after the name of a flower, it indicates that, among other colours, Pink, Rose and Salmon varieties are available.

#### HARDY ANNUALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
Candytuft. See Iberis.				
Clarkia elegans (Rose and Salmon)	-	24	-	July-October
Delphinium Gayanum (Pink) (Larkspur)	-	30	-	June-September
Godetia (Pink and Salmon)	-	12-24	-	July-October
Iberis umbellata (Candytuft)—Pink	12	-	-	July-October
Larkspur. See Delphinium.				
Lathyrus odoratus [various] (Sweet Pea)	-	-	36-72	July-October
Lavatera trimestris (Mallow)—Rose	-	30-36	36-60	July-October
Lupinus (various)	-	12-36	36-48	June-October
Malope grandiflora (Rose)	-	20	-	June-October
Matthiola [various] (Stock)	12	-	-	July & August
Papaver [various] (Poppy)	-	24	-	June-September
Saponaria calabrica—Pink	6	-	-	June-October
Senecio elegans (Rose, Pink or Salmon)	-	12-20	-	June-October
Statice sinuata var. rosea—Rose	-	18	-	June-October
Stock. See Matthiola.				
Sweet Pea. See Lathyrus.				
Xeranthemum annuum (Immortelle)— Rose	12	-	-	July-September

#### HALF-HARDY ANNUALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
Abronia umbellata (Rose-pink)	6-12	-	-	Summer
Anagallis tenella (Pink)	3	-	-	All Summer
Balsam. See Impatiens.				
Begonia (various)	9-12	-	-	June-September
Bog Pimpernel. See Anagallis tenella.				
Cosmos bipinnatus præcox (Pink) (Mexican Aster)	-	-	30-70	June-October
Dianthus (Pinks)	9-12	-	-	July-October
Impatiens balsamina (Balsam)	-	18	-	June-August
Phlox Drummondii (various)	12	-	-	June-October
Pinks. See Dianthus.				
Schizanthus retusus (Rose) (Butterfly Flower)	-	-	18-48	June-September
Verbena (various)	-	12-24	-	Summer & Autumn
Zinnia elegans (various)	12	-	-	July-September



# PINK, ROSE AND SALMON FLOWERS (continued)

## PERENNIALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
<i>Acanthus latifolius</i> (Rose) . . . . .	—	24	—	Summer
<i>Althæa rosea</i> [various] (Hollyhock). . .	—	—	72-120	August-September
<i>Anemone Hepatica</i> (Pink) . . . . .	6	—	—	March-May
<i>Anemone japonica</i> (Rose) . . . . .	—	36	—	August-September
<i>Antirrhinum</i> [various] (Snapdragon) . .	9-12	12-36	—	Summer
<i>Aster Amellus</i> vars. (Michaelmas Daisy)	— 2	4-30	—	September-October
—Pink				
<i>Aster Novæ-Angliæ</i> vars. (Michaelmas Daisy)—Pink	—	—	36-48	September-October
<i>Aster Novi-Belgii</i> (Michaelmas Daisy)—Pink	—	24-30	—	September-October
<i>Aubrietia</i> , <i>Bridesmaid</i> —Pink . . . . .	4	—	—	April-June
<i>Bellis perennis</i> (Daisy)—Pink . . . . .	6	—	—	April-June
Carnations. See <i>Dianthus Caryophyllus</i> .				
<i>Centaurea dealbata</i> (Pink) . . . . .	—	24	—	July & August
<i>Chrysanthemum</i> (various) . . . . .	—	36	—	Autumn
<i>Corydalis bulbosa</i> (Rose) . . . . .	9	—	—	May
Daisy. See <i>Bellis</i> .				
<i>Dianthus barbatus</i> (Sweet William) . .	—	18	—	Summer
<i>Dianthus Caryophyllus</i> [various] (Carnations)	—	18	—	Summer
<i>Dicentra spectabilis</i> (Pink) . . . . .	—	24-30	—	May-July
<i>Eremurus Elwesianus</i> (Rose) . . . . .	—	—	96	June
<i>Erigeron B. Ladhams</i> (Rose) . . . . .	—	24	—	May-September
<i>Gaura Lindheimeri</i> (Rose) . . . . .	—	—	40	June-October
<i>Geranium</i> (various) . . . . .	6-12	12-30	—	May-September
<i>Heuchera Zabeliana</i> , etc. (Rose) . . .	—	18	—	July-October
Hollyhock. See <i>Althæa rosea</i> .				
<i>Lavatera Olbia rosea</i> (Rose) . . . . .	—	—	18-60	June-August
<i>Lupinus polyphyllus</i> (Rose) . . . . .	—	36	—	June-October
<i>Lychnis Viscaria</i> fl. pl. (Rose) . . . .	9-12	—	—	June & July
<i>Malva moschata</i> , etc. [various] (Mallow)	—	30-36	—	Summer
Michaelmas Daisy. See <i>Aster</i> .				
<i>Pæonia</i> (various) . . . . .	—	20-36	36-48	May-July
<i>Penstemon</i> (various) . . . . .	—	18	—	July-October
<i>Phlox paniculata</i> vars. (various) . .	12-18	24-30	36-40	July-September
<i>Phlox subulata</i> (Pink) . . . . .	4	—	—	Early Summer
<i>Potentilla Miss Willmott</i> (Pink) . . .	—	18	—	June-September
<i>Primula cortusoides</i> (Rose) . . . . .	10	—	—	June
<i>Saponaria officinalis</i> (Rose) . . . . .	—	12-18	—	July-August
<i>Saponaria ocymoides</i> (Rose) . . . . .	6	—	—	May-July
<i>Saxifraga decipiens</i> , etc. (various) . .	6-10	—	—	May-July
<i>Sedum Ewersii</i> (Pink) . . . . .	6	—	—	August
<i>Sidalcea Rosy Gem</i> . . . . .	—	30-36	—	June-September
Snapdragon. See <i>Antirrhinum</i> .				
Sweet William. See <i>Dianthus barbatus</i> .				
<i>Verbascum Warley Rose</i> . . . . .	—	—	48-60	July-September
<i>Veronica longifolia rosea</i> (Rose). . .	—	24-30	—	June-August

For Shrubs and Trees see separate list, page 85.

## FLOWER COLOURS

### YELLOW, GOLDEN AND ORANGE FLOWERS

Where "various" is placed after the name of a flower, it indicates that, among other colours, Yellow, Golden and Orange varieties are available.

#### HARDY ANNUALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
<i>Arnebia cornuta</i>	12	—	—	July-September
<i>Calendula officinalis</i> (Pot Marigold)	—	18	—	June-October
<i>Centaurea moschata</i> [various] (Sweet Sultan)	—	20	—	July-October
<i>Chrysanthemums</i> (various)	—	12-36	—	July-October
<i>Coreopsis Drummondii</i>	12	—	—	July-September
<i>Eschscholzia</i> (Californian Poppy)	9-12	—	—	Early Summer and July-October
<i>Helianthus annuus</i> (Sunflower)	—	18-36	36-90	July-October
<i>Helichrysum bracteatum</i>	—	36	—	July-October
<i>Hibiscus africanus</i>	—	24	—	July-September
<i>Leptosyne Stillmannii</i>	12	—	—	July-September
<i>Limnanthes Douglasii</i>	3-6	—	—	Summer
<i>Linaria reticulata</i> (Toadflax)	—	12-18	—	July-October
<i>Lupinus luteus</i>	—	24	—	June-October
<i>Matthiola</i> [various] (Stock)	12	—	—	July-August
<i>Mignonette</i> . See <i>Reseda</i> .				
<i>Nasturtiums</i> . See <i>Tropæolum</i> .				
<i>Nemesia strumosa</i> [various]	9-12	—	—	July-September
<i>Papaver nudicaule</i> [various] (Iceland Poppy)	12	—	—	July-September
<i>Reseda odorata</i> (Mignonette)—Golden Sunflower. See <i>Helianthus</i> .	9	—	—	July-August
Sweet Sultan. See <i>Centaurea moschata</i> .				
<i>Tropæolum</i> ( <i>Nasturtiums</i> )	12	—	—	July-October
<i>Zinnia elegans</i> (Yellow and Orange)	—	18-24	—	Summer & Autumn

#### HALF-HARDY ANNUALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
<i>Celosia plumosa aurea</i> (Prince of Wales' Feathers)	—	20	—	August
<i>Mimulus tigrinus</i> [spotted] (Monkey Flower)	9	—	—	June
<i>Oxalis Valdiviana</i> (Wood Sorrel)	8	—	—	Summer & Autumn
<i>Statice Bonduellii</i> (Sea Lavender)	12	—	—	Summer & Autumn
<i>Tagetes erecta</i> (African Marigold)	—	20-30	—	Late Summer and Autumn
<i>Tagetes patula</i> (French Marigold)	6-9	24	—	Late Summer and Autumn
<i>Viola</i> (various)	6	—	—	All Summer
<i>Waitzia aurea</i> (Everlasting Flowers)	—	18	—	July-September
<i>Zinnia Haageana</i> (Orange)	12	—	—	Summer & Autumn

## YELLOW, GOLDEN AND ORANGE FLOWERS (ctd.)

### PERENNIALS

Name	Height in Inches			Time of Flowering
	up to 12	12-36	over 36	
<i>Achillea Eupatorium</i> (Milfoil) . . . . .	—	—	36-40	July-October
<i>Adonis vernalis</i> . . . . .	10	—	—	Spring
<i>Anemone</i> (various) . . . . .	9-12	12-18	—	Summer
<i>Aptirrhinum</i> [various] (Snapdragon) . . . . .	9-12	12-36	—	Summer
<i>Asphodeline lutea</i> . . . . .	—	24-36	—	May-July
<i>Aster hybridus luteus</i> . . . . .	—	24-30	—	July-September
<i>Bupthalmum salicifolium</i> . . . . .	—	24-30	—	July-September
Carnations. See <i>Dianthus Caryophyllus</i> .				
<i>Cheiranthus Cheiri</i> (Wallflower) [dwarf and medium] . . . . .	6	18-24	—	April-June
<i>Chrysanthemums</i> (various) . . . . .	—	24-36	—	Autumn
<i>Coreopsis lanceolata</i> (Tickseed) . . . . .	—	24-30	—	July-September
<i>Corydalis nobilis</i> (Fumitory) . . . . .	9-12	—	—	May
<i>Dianthus Caryophyllus</i> [various] (Carnations) . . . . .	—	18	—	Summer
<i>Eremurus spectabilis</i> . . . . .	—	24	—	June
<i>Gaillardia grandiflora</i> . . . . .	—	30	—	May-July
<i>Geum Lady Stratheden</i> . . . . .	—	18-24	—	May-July
<i>Helenium autumnale</i> . . . . .	—	20-30	—	July-October
<i>Helianthus multiflora major</i> , etc. . . . .	—	—	60-84	August-October
<i>Hemerocallis flava</i> (Day Lily) . . . . .	—	30	—	June-August
<i>Iris aurea</i> and <i>Monnieri</i> . . . . .	—	—	36-48	June-July
<i>Kniphofia Goldelse</i> and <i>Uvaria</i> . . . . .	—	30	—	June-September
<i>Linum flavum</i> (Flax) . . . . .	10	—	—	Summer
<i>Lupinus arboreus</i> (Tree Lupin) . . . . .	—	—	60	May-July
<i>Meconopsis cambrica</i> (Welsh Poppy) . . . . .	12	—	—	Summer
<i>Oenothera Mrs. Cuthbertson</i> (Evening Primrose) . . . . .	—	24	—	Summer
<i>Papaver nudicaule</i> (Iceland Poppy) . . . . .	6-12	—	—	May-September
<i>Primula</i> (various) . . . . .	12	—	—	May
<i>Rudbeckia speciosa</i> and <i>laciniata</i> . . . . .	—	24	60	July-September
<i>Thalictrum adiantifolium</i> and <i>glaucum</i> . . . . .	—	36	60	June-July
<i>Trollius asiaticus</i> (Globe Flower) . . . . .	12	—	—	May and June
<i>Verbascum plicatum</i> and <i>longifolium</i> <i>panosum</i> (Mullein) . . . . .	—	30-40	60-70	July-August
<i>Viola</i> (various) . . . . .	6	—	—	May-November
Wallflower. See <i>Cheiranthus Cheiri</i> .				

See also separate list under Shrubs and Trees, page 85.

### A SELECTION OF HYACINTHS

*White*.—\*La Grandesse, L'Innocence, and Mme. Van Hop

*Yellow*.—City of Haarlem, Daylight and King of the Yellows.

*Red*.—\*Chestnut Flower, Lady Derby and Roi des Belges.

*Pink*.—Charles Dickens.

*Mauve*.—Distinction and Lord Balfour.

*Blue*.—King of the Blues, and \*Lord Raglan.

*Purple-blue*.—Duchess of Westminster.

All these varieties are suitable for beds or pot culture.

\* Denotes double varieties.

## BULBS

The general run of bulbs are easily cultivated, needing but to be planted in the early autumn at about two or three times their own depth, in reasonably good and light garden soil, with which a good amount of leaf-mould has been mixed. They should be planted at a uniform depth and should not come into contact with recent manure; good drainage is essential. If the soil is inclined to be at all heavy it is desirable to lighten it by working in sand at and around each spot in which a clump of bulbs is to be planted. Bulbs, as a rule, should be planted deep, especially crocuses, gladioli and lilies, because the bulbs are then less likely to suffer from the effects of frost.

Nearly all bulbs may, in well-drained soil, be allowed to remain for several years without being taken up, divided and replanted. But there are certain exceptions. Tulips and hyacinths, for example, should be lifted when the leaves die down, carefully dried, and stored in a cool dry place.

A good artificial manure for bulbs is bonemeal; it should be dusted round the bulbs at the rate of 2 oz. to the square yard and thoroughly forked in in February; an equal amount of superphosphate may, with advantage, be added.

**Treatment after Blooming.**—The leaves and flower-stalks should not be removed until they have withered and decayed to such an extent that they may be removed by a very slight effort. When the leaves have completely died away, but not before, bulbs may be taken up and allowed to dry. As soon as the tops are dry and withered they should be cut off an inch above the bulbs, and the roots should also be cut away; the bulbs should then be kept in a dry, dark and frost-proof place to which the air has free access, until the time for planting comes round again.

**Bulbs in Pots.**—The bulbs should be planted in early autumn, and the pots should be well soaked in water, and placed in the open on boards or slates. The pots should be surrounded and covered with a layer of 5 inches of fibre or ashes, and left for seven to nine weeks until the roots will have formed and the tops have made an inch of growth, when they may be moved to a frame or a cold house, and should be liberally supplied with water.

## BULBS IN FIBRE

Care should be taken that the pots are not subjected to full light until the yellow shoots have turned green. When this has happened the pots should be placed close to the glass and brought on gradually till the flower buds are well advanced, when liquid manure may be used and moderate heat given. A good compost consists of a mixture of equal parts of loam, leaf-mould and well-rotted cow-manure, together with a little sand.

The number of bulbs that may be planted in a pot depends, of course, on the species of bulb and on the size of pot used. Snowdrops, crocuses and scilla may be planted so that they practically touch one another, that is, about nine bulbs in a 5-inch pot; larger bulbs, such as those of the daffodil and tulip, may be planted six in a 5-inch pot, while only three hyacinths should be grown in a 6-inch pot. The bulbs of the daffodil, hyacinth, tulip, and similar flowers should be potted so that their tips are just above the surface of the soil; a few other bulbs should only be half-buried; while others again must be buried one, three or even more inches below the surface. After forcing, which cannot be done for more than one year running, bulbs may be planted out in borders.

**Bulbs in Fibre.**—After soaking the fibre for a day or so, drain it thoroughly until only a drop or two of water comes out when squeezed in the hand. Then fill your bowls to a depth of about one-half for large bulbs, three-quarters for the smaller. On this layer, which should not be pressed down too tightly, place your bulbs. Bulbs may nearly but not quite touch. Then fill the bowl nearly to the top with fibre, so that the extreme tips of the bulbs just show above it.

Keep the bowls for the first six weeks in a dark place, preferably an airy, cool cupboard or cellar. Once a week or so examine the bowls to see whether the fibre is dry, and if so plunge them in a basin of lukewarm water, which should cover them completely. When the fibre is well soaked take out the bowls and turn them carefully sideways, so that any superfluous water may drain off. The fibre should be just damp, never sodden. When the bulbs have made shoots about an inch long the bowls should be brought out into the light, but they should not be exposed to full air and sunshine until the shoots have turned green.

## SOME GOOD BULBS AND TUBERS

### FOR SPRING FLOWERING OUTDOORS

Anemones	†Erythronium californicum, etc. (late)	Muscari (Grape Hyacinth)
Bulbocodium	†Fritillaria Meleagris	†Narcissus cyclamineus, etc.
†Chionodoxa sardensis, etc.	Galanthus (Snowdrop)	Phædranassa chloracra (Queen Lily)
Convallaria (Lily of the Valley)	†Hyacinthus azureus, H. amethystinus, etc.	Puschkinia scilloides (Striped Squill) (late)
†Crocus Imperati, C. Sieberi, C. Tommasinianus, etc.	†Iris Histrioides, †I. reticulata	†Scilla sibirica, etc.
†Cyclamen ibericum, etc.	†Leucojum vernum carpathicum	Sternbergia Fischeriana
Daffodils		

### FOR SUMMER FLOWERING OUTDOORS

Allium	*Freesia	Ornithogalum (various)
†Alstroemeria aurantiaca	Gladioli (early)	*Pancratium illyricum
Antholyza paniculata	Habranthus pratensis	Paradisica Liliastrum
Begonias	Iris (English & Spanish)	Ranunculus
Brodiaea	*Ixia (various)	*Sparaxis tricolor
*Calochortus	*Ixiolirion montanum	Tigridia (various)
Camassia	Lapeyrousia cruenta	Trillium grandiflorum
†Crinum Powellii album	Lilium (various)	Watsonia
Cyclamen (some vars.)	Montbretia	Zephyranthes candida
	*Mirabilis (various)	

### FOR AUTUMN FLOWERING OUTDOORS

Agapanthus	Cyclamen (some vars.)	Liliums (some vars.)
Amaryllis Belladonna	Gladioli (late)	Mirabilis
Colchicum (Autumn Crocus)	Lapeyrousia	Oxalis
	Leucojum autumnale	Zephyranthes candida

### FOR WINTER FLOWERING OUTDOORS

Colchicum speciosum album, etc.	†Eranthis Tubergenii (Winter Aconite)	Iris alata, †I. unguicularis
Crocus nudiflorus, †C. speciosus, etc.	†Galanthus Elwesii and G. plicatus	Narcissus pseudo-narcissus
Cyclamen neapolitanum, etc.		†Schizostylis coccinea

### BULBS FOR GROWING IN FIBRE

Chionodoxas	Hyacinth, see List of	Tulips (some vars.) see
Crocus (except yellow vars.)	Hyacinths, page 74	List of Tulips, page 78.

### BULBS FOR NATURALIZING IN GRASS

Allium Moly	Cyclamen (various)	Narcissus (various)
Anemone apennina	Fritillaria (various)	Ornithogalum
Chionodoxas	Galanthus (Snowdrop)	Scilla bifolia, S. sibirica,
Colchicum autumnale and C. speciosum (Autumn Crocus)	Leucojum aestivum and L. vernum	S. præcox and S. verna
Crocus (various)	Muscari azureus and M. conicum	

\* Denotes species suitable only for warm, sheltered situations.

† Plants with Royal Horticultural Society's Award of Garden Merit.

See also Bulbs for Rockgarden under Rockgarden, page 107, and Bulbs for Pots under Greenhouse, page 226.

## SMALL SELECTIONS OF DAFFODILS AND NARCISSUS

*The name Daffodil is generally applied to those types of Narcissus with long, trumpet-like corollas, the name Narcissus, which really covers the whole genus, being reserved for those with short, cup-shaped corollas.*

### DAFFODILS

*Trumpet* (Trumpet as long or longer than perianth segments).

*Yellow.*—Cleopatra and \*Golden Spur. *Golden.*—\*King Alfred. *White.*—Madame de Graaff, Peter Barr and White Knight. *White or cream perianth with yellow trumpet.*—Horsfieldii and Spring Glory.  
*Cyclamen-flowered Daffodil.* *N. cyclamineus.*—(Pale yellow with darker, very narrow trumpet.)

### NARCISSUS

*Incomparabilis or Short Cup.*—Bernardine, Homespun, \*Lucifer, \*Sir Watkin, Vesuvius and Will Scarlett. (White or yellow outer petals, cup yellow and red).  
*Barri or Star Narcissus.*—Albatross, Blood Orange, Conspicuous, Red Beacon, Red Chief and Seagull. (White or yellow perianth, bright-coloured cups).  
*Eucharis-flowered or Leedsii.*—Bridesmaid, \*Duchess of Westminster and White Lady. (White outer petals, cups white, cream or yellow, maybe tinged pink).  
*"Angels Tears" N. triandrus.*—Agnes Harvey, Queen of Spain and Venetia. (Outer petals reflexed. Short cup.)  
*Jonquils.*—Buttercup, \*Jonquilla, and *N. odorus rugulosus.* (2-6 sweet scented-yellow flowers on one leafless stalk.)  
*Polyanthus or Tazetta.*—\*Aspasia, \*Elvira, and \*Paper White. (Bunch-flowered, white with yellow cups.)  
*Poet's Narcissus.*—Cassandra, Epic, Pheasants' Eye and White Standard. (White or yellow petals with red eye.)  
*Double.*—Argent, Butter and Eggs, Oranges and Lemons, and Telamonius plenus.

## A SELECTION OF TULIPS

*April-flowering Tulips.*

*White.*—White Swan.  
*Yellow.*—Primrose Queen and Yellow Prince.  
*Red.*—Cramoisi Brilliant and Vermilion Brilliant.  
*Red and Yellow.*—Keizer Kroon.  
*Rose and White.*—Pink Beauty.  
*Double.*—Yellow Rose (Yellow), and Vuurbaak (Scarlet).

All these are suitable for beds or pot culture.

*Cottage (May-flowering).*

*White.*—Carrara and Monsieur S. Mottet.  
*Yellow.*—Ellen Willmott, Inglescombe Yellow, and Mrs. Moon.  
*Yellow, flushed Rose.*—Amber Crown, Golden Crown.  
*Crimson.*—Inglescombe Scarlet and Scarlet Emperor.  
*Crimson, flushed Orange.*—Grenadier and Orange King.  
*Purple and Bronze.*—Louis XIV.  
*Purple-violet.*—Velvet King.

*Darwin (May-flowering).*

*White.*—Canada.  
*Rose.*—Clara Butt, Margaret and Pride of Haarlem.  
*Red.*—Bartigon, Europe, Glow, and King Harold.  
*Lilac-mauve.*—Erguste and Rev. H. Ewbank.  
*Purple.*—Corydon, The Bishop and La Tulipe Noire (very dark).

\* Recommended for Pot Culture.

## SHRUBS AND TREES

*The variety and number of flowering and evergreen shrubs and trees which is now available for garden planting is enormous. Yet to look at many gardens, one would think that the privet, the laurel, the elder, the euonymous and the rhododendron constituted the whole race. Just glance at our lists which follow.*

**Preparation of Soil.**—Before planting shrubs or trees, the ground should be deeply dug or trenched to a depth of 2 feet, enriched with well-rotted old manure and leaf-mould, and sufficient space should be allowed to each individual plant for the full development of its own peculiar habit of growth.

**Arrangement and Grouping.**—When shrubs are to serve as individual specimens on a lawn or similar situation, clearly no "arrangement" is required. If planted in groups it is usually desirable that several plants of a kind should be placed together, though even here full space should be allowed for each. During the summer the soil round the shrubs should be kept well hoed and should be forked over each winter, and where a shrub is seen to be doing badly or to be exhausted, well-decayed manure should be worked into the soil round the roots.

**Planting.**—Usually the plants are best put in when of medium size. As a rule the best time to plant deciduous shrubs is from the middle of October, to the middle of November, or in February and March. Evergreens are best planted in September and early October, or better still, perhaps, in April. Never plant evergreens in winter, nor when cold drying winds are prevalent. Plants that have been grown in pots may, of course, be planted out at almost any time. In the case of shrubs it is usually wise, at the time of planting, to thin-out and reduce the length of the branches by about one-third.

**Pruning Shrubs and Climbers.**—It must always be borne in mind that the time for pruning depends on the season of flowering, and the method is dependent upon whether the bloom is borne on the new or the old wood. Where the new shoots, that is to say those of the current year, bear the flowers, some of the old and weak growth has to be cut in order that the new shoots may be encouraged. This may be done any time from October to November, as the flowers are usually borne in late spring or early summer.



## SHRUBS AND TREES

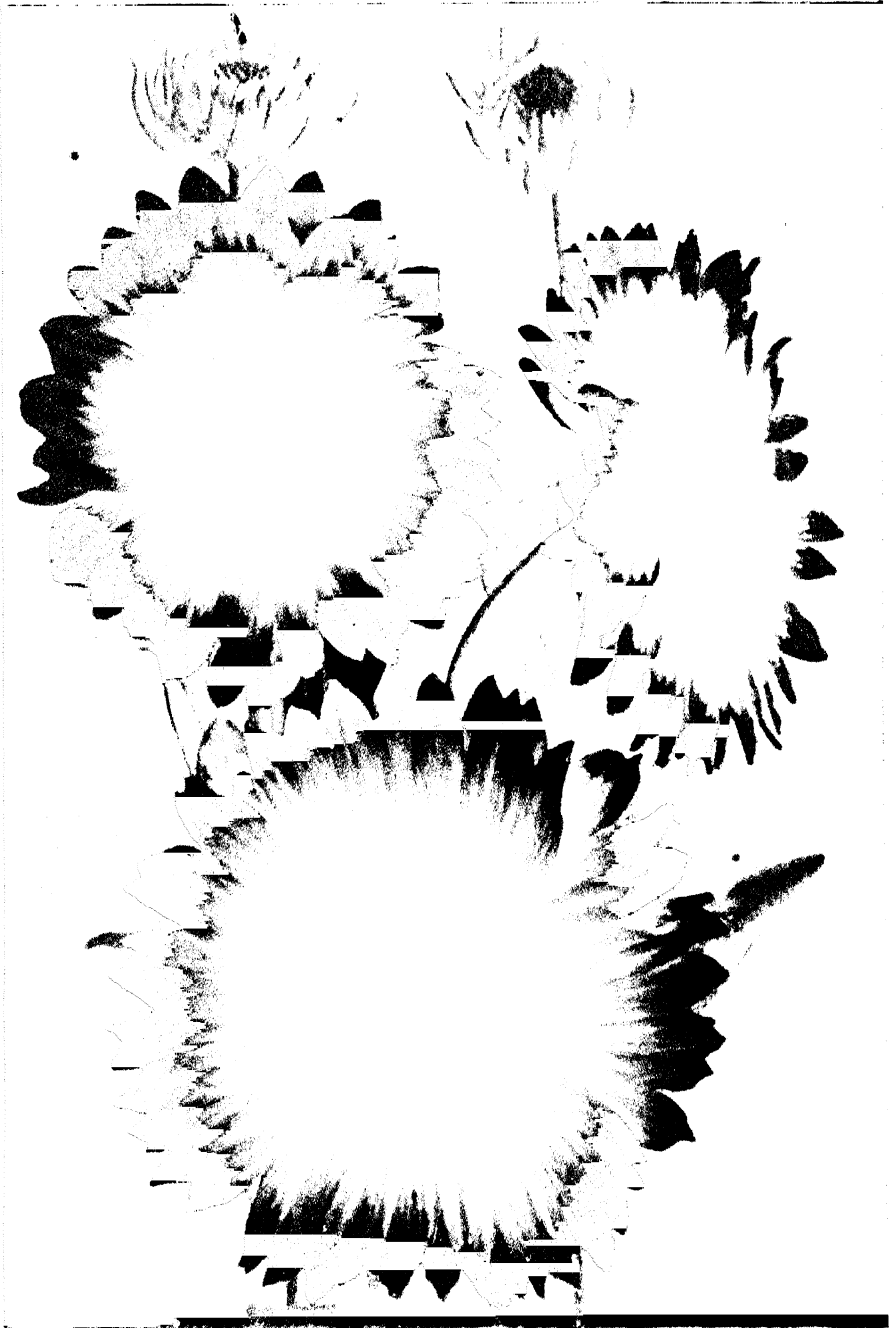
Where, however, the plants flower on the old wood, generally in late winter or early spring, only the decayed and useless old wood must be cut away, which is usually done in late spring or early summer, directly after flowering. April is the best time to prune evergreens, except conifers, which are best trimmed in October. Conifers, except when grown as hedge-plants, are not usually pruned.

### SOME GOOD DECIDUOUS FLOWERING SHRUBS

A really good and representative selection of the best deciduous flowering shrubs should include most of the following :—

*Amelanchier vulgaris* (10-15 ft.) White, etc..  
*Azaleas* (various)  
*Berberis concinna* (2-4 ft.) Yellow  
*Berberis dictyophylla* (up to 6 ft.) Yellow  
*Berberis polyantha* (5-9 ft.) Yellow  
*Buddleia variabilis* var. *magnifica* (10-20 ft.) Mauve  
*Ceanothus Gloire de Versailles* (3-8 ft.) Lavender  
*Ceanothus Marie Simon* (3-8 ft.) Rose  
*Chionanthus virginica* (10-12 ft.) White  
*Clerodendron Fargesii* (3-6 ft.) Green calyx, turning Rosy-red  
*Clethra alnifolia* (5-8 ft.) White  
*Cotoneaster frigida* (up to 20 ft.) White or Pink tinted  
*Cydonia japonica* (4-9 ft.) White, Pink, etc.  
*Cytisus Beanii* (6-12 inches) Golden Yellow  
*Cytisus Dorothy Walpole* (5-6 ft.) Rich Crimson  
*Cytisus kewensis* (9-12 inches) Creamy-white  
*Cytisus scoparius* (up to 6 ft.) Yellow  
*Daphne Mezereum* (3-4 ft.) Purple-red  
*Deutzia discolor grandiflora* (5-6 ft.) Pink  
*Diervilla Eva Rathke* (5-6 ft.) Crimson-purple  
*Enkianthus campanulatus* (5-6 ft.) Creamy-yellow  
*Eucryphia pinnatifolia* (10-15 ft.) White  
*Fuchsia Riccartonii* (3-5 ft.) Crimson and purple  
*Genista hispanica* (up to 3 ft.) Golden-yellow  
*Hibiscus syriacus* var. *cœleste* (7-10 ft.) Light Blue  
*Hydrangea paniculata grandiflora* (3-6 ft.) Creamy-white  
*Hypericum patulum Henryi* (4-6 ft.) Yellow  
*Kerria japonica flore pleno* (6-12 ft.) Golden-yellow  
*Kolkwitzia amabilis* (5-8 ft.) Pink, tinged Yellow  
*Leycesteria formosa* (4-8 ft.) Purple and White  
*Magnolia Soulangeana* (20-40 ft.) White and Purple  
*Magnolia stellata* (up to 10-12 ft.) White  
*Philadelphus Lemoinei erectus* (4-5 ft.) White  
*Philadelphus microphyllus* (2-3 ft.) White  
*Philadelphus Virginal* (2-8 ft.) White  
*Potentilla fruticosa* (2-4 ft.) Yellow  
*Prunus Amygdalus nana* (3-4½ ft.) Rose-pink  
*Prunus serrulata albo pleno* (15-20 ft.) White  
*Prunus triloba flore pleno* (10-15 ft.) Rosy-pink  
*Rhododendrons* (various)  
*Ribes aureum* (5-6 ft.) Yellow  
*Ribes sanguineum* var. *King Edward VII* (4-6 ft.) Deep Crimson.





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GAILLARDIAS.

## SHRUBS AND TREES

### SOME GOOD DECIDUOUS FLOWERING SHRUBS (ctd.)

*Rosa Hugonis* (8-9 ft.) Yellow  
*Rosa Moyesii* (6-10 ft.) Ruby  
*Spartium junceum* (6-10 ft.) Yellow  
*Spiræa arguta* (up to 6 ft.) White  
*Spiræa japonica* *Anthony Waterer* (2-2½ ft.) Crimson  
*Spiræa Lindleyana* (12-18 ft.) White  
*Spiræa Van Houttei* (4-6 ft.) White  
*Staphylea colchica* (6-9 ft.) White  
*Syringa vulgaris* *President Grévy* (12-25 ft.) Lilac  
*Syringa vulgaris* *Souvenir de Louis Spath* (12-25 ft.) Dark Wine  
*Tamarix pentandra* (4-6 ft.) Rose-pink  
*Viburnum Carlesii* (up to 4 ft.) Pinkish-white  
*Viburnum Opulus sterile* (8ft. or more) White.

### SOME GOOD DECIDUOUS TREES

No less important, and in many cases even more striking than the deciduous shrubs, are a number of the lovely deciduous trees, with their ornamental foliage, rich autumnal tints, and attractive berries, fruits, seed cases, and beautiful flowers.

<i>Acer Negundo albo variegatum</i>	† <i>Liriodendron Tulipifera</i> (Tulip Tree)
<i>Acer rubrum</i> (Scarlet Maple)	<i>Nyssa sylvatica</i> (Tupelo Tree)
* <i>Æsculus carnea</i> (Red Horse Chestnut)	<i>Parrotia persica</i>
<i>Æsculus Pavia</i> (Red Buckeye)	<i>Paulownia imperialis</i>
† <i>Ailanthus glandulosa</i> (Tree of Heaven)	* <i>Prunus Amygdalus</i> (Almond)
* <i>Amelanchier lævis</i> (June Berry)	* <i>Prunus Avium flore pleno</i> (Double White Cherry)
<i>Betula verrucosa</i> and vars. (Silver Birch)	* <i>Prunus cerasifera</i> <i>Pissardii</i> (Purple-leaved Plum)
† <i>Castanea sativa</i> (Sweet Chestnut)	* <i>Prunus Padus Watereri</i> (Bird Cherry)
† <i>Catalpa bignonioides</i> (Indian Bean Tree)	* <i>Prunus Persica flore roseo pleno</i>
<i>Cercis siliquastrum</i> (Judas Tree)	* <i>Prunus serrulata</i> (Double White Japanese Cherry)
<i>Corylus Colurna</i> (Constantinople Nut)	* <i>Prunus serrulata</i> var. <i>Sekiyama</i> (Hisakura Cherry)
* <i>Cratægo-mespilus grandiflora</i>	* <i>Prunus subhirtella</i>
* <i>Cratægus coccinea</i> (Scarlet Haw)	<i>Pyrus Aucuparia</i> (Mountain Ash)
* <i>Cratægus Cræus-galli</i> (Cockspur Thorn)	<i>Pyrus baccata</i> (Flowering Crab)
<i>Cratægus oxyacantha flore albo pleno</i> (Double White May)	* <i>Pyrus Eleyi</i>
* <i>Cratægus oxyacantha flore coccinea pleno</i> (Double Red May)	* <i>Pyrus floribunda</i>
<i>Davidia Vilmoriniana</i> (Chinese Dove Tree)	* <i>Pyrus Scheideckeri</i>
† <i>Fagus sylvatica</i> (Beech)	<i>Pyrus Sorbus</i> (Service Tree)
† <i>Fagus sylvatica cuprea</i> (Copper Beech)	* <i>Pyrus spectabilis</i>
<i>Halesia carolina</i> (Silver Bell or Snowdrop Tree)	† <i>Quercus Cerris</i> (Turkey Oak)
† <i>Juglans regia</i> (Walnut)	<i>Quercus coccinea</i> (Scarlet Oak)
* <i>Laburnum Watereri</i> (Waterer's Hybrid Laburnum)	† <i>Quercus pedunculata</i> (Common Oak)
† <i>Liquidambar styraciflua</i> (Sweet Gum)	<i>Quercus rubra</i> (Red Oak)
	† <i>Robinia Pseudacacia</i>
	† <i>Salix babylonica</i> (Willow)
	<i>Tilia petiolaris</i>
	† <i>Ulmus montana</i> (Wych Elm)
	<i>Ulmus montana</i> var. <i>pendula</i> (Weeping Wych Elm)
	† <i>Zelkova crenata</i> .

\* Flowering trees of moderate size. † Large specimen trees.

## SHRUBS AND TREES

### A SELECTION OF EVERGREEN TREES AND SHRUBS

#### TREES (Excluding Conifers)

- |                           |                            |
|---------------------------|----------------------------|
| Arbutus Unedo             | Magnolia grandiflora       |
| Ceanothus thyrsiflorus    | *Nothofagus Cunninghamii   |
| Castanopsis chrysophylla  | Quercus Ilex and varieties |
| Ilex Aquifolium varieties | Quercus Suber              |
| Laurus nobilis            | Trachycarpus excelsus      |
| *Magnolia Delavayi        | Umbellularia californica   |

#### SHRUBS

- |                                      |                                      |
|--------------------------------------|--------------------------------------|
| Andromeda (various)                  | Fatsia japonica                      |
| Arctostaphylos Manzanita             | Garrya elliptica                     |
| Arundinaria (various)                | Gaultheria Shallon                   |
| Aucuba japonica                      | Helianthemum (various)               |
| Azara microphylla                    | Hypericum calycinum                  |
| Bambusa (various)                    | Ilex crenata                         |
| Berberis Darwinii                    | Kalmia latifolia                     |
| Berberis Gagnepainii                 | Lavandula spica                      |
| Berberis stenophylla vars.           | Leiophyllum buxifolium               |
| Buxus sempervirens vars.             | Leucothoe Catesbaei                  |
| Calluna vulgaris vars.               | Ligustrum lucidum                    |
| *Camellia japonica vars.             | Lonicera nitida and pileata          |
| *Carpenteria californica             | Mahonia Aquifolium                   |
| Cassinia fulvida                     | Olearia Haastii                      |
| Ceanothus rigidus                    | Osmanthus Delavayi                   |
| Ceanothus Veitchianus                | Pernettya mucronata                  |
| Choisya ternata                      | Phillyraea decora                    |
| Cistus cyprus and laurifolius        | Phyllostachys (various)              |
| Cistus Loreti                        | Pieris japonica                      |
| *Corokia Cotoneaster                 | Prunus Laurocerasus (Cherry Laurel)  |
| Cotoneaster Franchetii               | Prunus lusitanicus (Portugal Laurel) |
| Cotoneaster Henryana                 | Pyracantha coccinea and var.         |
| Cotoneaster microphylla              | Lalandei                             |
| Cotoneaster salicifolia              | Pyracantha Rogersiana                |
| Daphne Cneorum                       | Quercus coccifera                    |
| Elæagnus pungens                     | Rhamnus alaternus [vars.]            |
| Empetrum nigrum                      | Rhododendrons (many species and      |
| Erica alpina, arborea and lusitanica | Rosmarinus officinalis (Rosemary)    |
| Erica mediterranea                   | Santolina Chamæcyparissus            |
| Erica vagans and vars.               | Veronica Traversii                   |
| Escallonia langleyensis              | Viburnum rhytidophyllum              |
| Escallonia macrantha                 | Viburnum Tinus                       |
| Eucryphia pinnatifolia               | Vinca major and minor                |
| Euonymus japonica vars.              | Yucca gloriosa and recurvifolia.     |

\* Denotes half-hardy subjects.

#### SOME GOOD CONIFERS

- |                                      |                                  |
|--------------------------------------|----------------------------------|
| Abies nobilis                        | Cupressus Lawsoniana and vars.   |
| Abies pectinata [Puzzle]             | Cupressus macrocarpa             |
| Araucaria imbricata (Monkey          | Cupressus pisifera and vars.     |
| Cedrus atlantica (Atlas Cedar) vars. | *Ginkgo biloba (Maidenhair Tree) |
| aurea and glauca                     | Juniperus communis and vars.     |
| Cedrus Libani (Cedar of Lebanon)     | *Larix europæa                   |
| Cryptomeria japonica vars. elegans,  | Larix occidentalis               |
| and Lobbii                           | Libocedrus decurrens             |

\* Denotes deciduous species.

## SHRUBS AND TREES

### SOME GOOD CONIFERS (continued)

<i>Picea excelsa</i> and vars. (Spruce)	<i>Sequoia gigantea</i> (Wellingtonia)
<i>Picea Morinda</i> (Himalayan Spruce)	* <i>Taxodium distichum</i>
<i>Picea pungens</i> and var. <i>glauca</i>	<i>Taxus baccata</i> (Yew)
<i>Pinus excelsa</i>	<i>Taxus b. aurea</i>
<i>Pinus Laricio</i> and var. <i>nigricans</i>	<i>Taxus b. Dovastoni</i>
<i>Pinus montana</i>	<i>Taxus b. fastigiata</i> (Irish Yew)
<i>Pinus sylvestris</i> (Scotch Fir)	<i>Thuya plicata</i>
* <i>Pseudolarix Fortunei</i>	<i>Thuya orientalis</i> and vars.
<i>Pseudotsuga Douglasii</i> (Douglas Fir)	<i>Tsuga Pattoniana</i>

\* Denotes deciduous species.

NOTE.—Although they are not cone-bearing, it is usual to include the *Taxus* (Yew) and Ginkgo in or with the Conifer family.

See also Rock Garden, Shrubs for, page 108.

### SOME TREES FOR THE SMALL GARDEN

<i>Acer Negundo variegatum</i> . . . . .	Variegated Box Elder . . . . .	20-40 ft.
<i>Æsculus Pavia</i> . . . . .	Red Buckeye . . . . .	10-12 ft.
<i>Amelanchier canadensis</i> . . . . .	Service Berry . . . . .	15-30 ft.
<i>Cercis siliquastrum</i> . . . . .	Judas Tree . . . . .	15-20 ft.
<i>Cornus Mas</i> . . . . .	Cornelian Cherry . . . . .	10-25 ft.
<i>Cotoneaster frigida</i> . . . . .	Rockspray . . . . .	up to 20 ft.
<i>Cratægus coccinea</i> . . . . .	Scarlet Haw . . . . .	15-20 ft.
<i>Cratægus oxyacanthoides</i> varieties	Single and Double May Trees	15-20 ft.
<i>Cratægus prunifolia</i> . . . . .	North American Thorn . . . . .	15-20 ft.
* <i>Cryptomeria japonica elegans</i> . . . . .	Japanese Cedar . . . . .	10-15 ft.
* <i>Cupressus pisifera squarrosa</i> . . . . .	Cypress . . . . .	15-25 ft.
* <i>Eucryphia pinnatifolia</i> . . . . .	Chilean Eucryphia . . . . .	12-20 ft.
<i>Euonymus europæus</i> . . . . .	Spindle Tree . . . . .	10-25 ft.
<i>Halesia carolina</i> . . . . .	Snowdrop Tree . . . . .	8-30 ft.
<i>Hamamelis Mollis</i> . . . . .	Chinese Witch Hazel . . . . .	8-10 ft.
* <i>Ilex Aquifolium</i> varieties . . . . .	Holly . . . . .	10-40 ft.
<i>Laburnum alpinum</i> . . . . .	Scotch Laburnum . . . . .	10-30 ft.
<i>Laburnum Adamii</i> . . . . .	Purple Laburnum . . . . .	10-25 ft.
<i>Magnolia conspicua</i> . . . . .	White Magnolia . . . . .	20-40 ft.
<i>Magnolia Lennei</i> . . . . .	Purple Magnolia . . . . .	12-20 ft.
<i>Magnolia Soulangeana</i> . . . . .	Hybrid Magnolia . . . . .	10-40 ft.
<i>Oxydendrum arboreum</i> . . . . .	Sorrel Tree . . . . .	10-30 ft.
<i>Parrotia persica</i> . . . . .	Persian Witch Hazel . . . . .	20-40 ft.
* <i>Pinus montana</i> . . . . .	Mountain Pine . . . . .	4-6 ft.
<i>Prunus Amygdalus</i> . . . . .	Almond . . . . .	12-25 ft.
<i>Prunus Avium flore pleno</i> . . . . .	Double Gean . . . . .	20-40 ft.
<i>Prunus cerasifera</i> . . . . .	Cherry Plum . . . . .	15-20 ft.
<i>Prunus Lannesiana erecta</i> . . . . .	Japanese Cherry . . . . .	10-18 ft.
<i>Prunus Padus flore pleno</i> . . . . .	Double Bird Cherry . . . . .	10-30 ft.
<i>Prunus Persica Clara Meyer</i> . . . . .	Double Peach . . . . .	10-30 ft.
<i>Prunus serrulata albo-pleno</i> . . . . .	Japanese Cherry . . . . .	10-25 ft.
<i>Prunus subhirtella</i> . . . . .	Ornamental Cherry . . . . .	12-20 ft.
<i>Pyrus Aucuparia</i> . . . . .	Mountain Ash . . . . .	15-30 ft.
<i>Pyrus baccata</i> . . . . .	Siberian Crab . . . . .	15-30 ft.
<i>Pyrus Eleyi</i> . . . . .	Flowering Crab . . . . .	15-20 ft.
<i>Pyrus floribunda</i> . . . . .	Japanese Crab . . . . .	12-15 ft.
<i>Pyrus purpurea</i> . . . . .	Purple Crab . . . . .	15-25 ft.
<i>Pyrus Scheideckeri</i> . . . . .	Flowering Crab . . . . .	15-20 ft.
<i>Robinia hispida</i> . . . . .	Rose Acacia . . . . .	6-10 ft.
<i>Ulmus montana pendula</i> . . . . .	Weeping Wych Elm . . . . .	10-30 ft.

\* Denotes Conifers or Evergreens.

## SHRUBS AND TREES

### . FEBRUARY AND MARCH (continued)

Tree or Shrub	Deciduous or Evergreen	Colour of Flowers	Height
* <i>Prunus cerasifera</i> . . .	Deciduous	White or Rose-tinted .	20-30 ft.
* <i>Prunus Amygdalus</i> . . .	Deciduous	Rosy-pink . . . . .	10-25 "
<i>Rhododendron</i> (some vars.)	Evergreen	Reddish-white, etc. .	1-18 "
<i>Spiræa Thunbergii</i> . . .	Deciduous	White . . . . .	3½-4½ "
<i>Stachyurus chinensis</i> . .	Deciduous	Greenish-yellow . . .	5-7 "
<i>Sycopsis sinensis</i> . . .	Evergreen	Red Bracts and Yellow Stamens	6-15 "
<i>Ulex europæus</i> fl. pl. . .	Evergreen	Golden . . . . .	3-5 "
<i>Viburnum fragrans</i> . . .	Deciduous	Pink or White . . . .	6 "

### APRIL

Tree or Shrub	Deciduous or Evergreen	Colour of Flowers	Height
* <i>Ægle sepiaria</i> . . . . .	Deciduous	White . . . . .	8-10 ft.
* <i>Amelanchier</i> (various)	Deciduous	White . . . . .	6-30 "
<i>Berberis Darwinii</i> . . .	Evergreen	Golden-yellow . . . .	8-12 "
<i>Ceanothus rigidus</i> , etc. .	Evergreen	Purplish-blue . . . .	12-20 "
<i>Corylopsis Veitchiana</i> . .	Deciduous	Primrose-yellow . . .	5-6 "
<i>Cydonia japonica</i> & vars.	Deciduous	Scarlet, Pink, Yellow, or White	4-9 "
<i>Cytisus præcox</i> . . . . .	Deciduous	Sulphur Yellow . . . .	6 "
<i>Erica</i> (various) . . . . .	Evergreen	Various . . . . .	1-6 "
<i>Forsythia intermedia</i> <i>spectabilis</i>	Deciduous	Golden-yellow . . . .	8 "
<i>Kerria japonica</i> fl. pl. . .	Deciduous	Golden-yellow . . . .	6-12 "
* <i>Magnolia</i> (various) . . .	Deciduous	Pink to White . . . .	4-30 "
<i>Osmanthus Delavayi</i> . . .	Evergreen	White . . . . .	4-6 "
* <i>Parrotia persica</i> . . . . .	Deciduous	Red . . . . .	20-40 "
<i>Pieris japonica</i> . . . . .	Evergreen	White . . . . .	4-10 "
* <i>Prunus cerasifera</i> <i>Pissardii</i>	Deciduous	Blush-pink . . . . .	20-30 "
* <i>Prunus triloba</i> fl. pl. . .	Deciduous	Rosy-pink . . . . .	10-15 "
* <i>Pyrus Malus</i> (various) . .	Deciduous	Red to White . . . .	10-30 "
<i>Rhododendrons</i> (many).	Evergreen	Varied Colours . . . .	1-18 "
<i>Ribes sanguineum</i> vars.	Deciduous	Red, Pink, Rose, White	2-8 "
<i>Spiræa arguta</i> . . . . .	Deciduous	White . . . . .	6-8 "
<i>Ulex europæus</i> fl. pl. . .	Evergreen	Golden . . . . .	1½-5 "
<i>Viburnum Carlesii</i> . . . .	Deciduous	Pinkish-white . . . .	3-4 "

### MAY

Tree or Shrub	Deciduous or Evergreen	Colour of Flowers	Height
<i>Berberis stenophylla</i> . . .	Evergreen	Yellow . . . . .	6-10 ft.
<i>Berberis vulgaris</i> . . . .	Deciduous	Yellow . . . . .	6-15 "
<i>Buddleia globosa</i> . . . .	Semi-ever- green	Orange . . . . .	8-15 "

# CALENDAR OF BLOOM

## MAY (continued)

Tree or Shrub	Deciduous or Evergreen	Colour of Flowers	Height
<i>Ceanothus dentatus</i> . . .	Evergreen	Blue, Lilac . . . . .	12-20 ft.
* <i>Cercis siliquastrum</i> . . .	Deciduous	Rosy-lilac . . . . .	15-25 "
<i>Choisya ternata</i> . . .	Evergreen	White, with Gold Stamens	6-10 "
<i>Coroëa Cotonæster</i> . . .	Evergreen	Yellow . . . . .	3-8 "
<i>Coronilla glauca</i> . . .	Evergreen	Yellow . . . . .	6-8 "
<i>Cotoneaster multiflora</i> . . .	Deciduous	White . . . . .	5-10 "
<i>Cytisus</i> (various) . . .	Deciduous	Bronze, Yellow, etc. . .	1-10 "
<i>Daphne</i> (various) . . .	Deciduous and Evergreen	Various . . . . .	1-4 "
<i>Deutzia</i> (various) . . .	Deciduous	White, Rose or Purple	3-12 "
<i>Diervilla</i> (various) . . .	Deciduous	White, Pink, Rose- crimson	4-6 "
<i>Erica</i> (various) . . .	Evergreen	Various . . . . .	1-6 "
<i>Genista hispanica</i> . . .	Deciduous	Golden-yellow . . . . .	1-3 "
* <i>Halesia carolina</i> . . .	Deciduous	White . . . . .	10-30 "
<i>Kalmia glauca</i> . . .	Evergreen	Purplish-rose . . . . .	2 "
* <i>Laburnum alpinum</i> . . .	Deciduous	Yellow . . . . .	20-30 "
* <i>Magnolia</i> (various) . . .	Deciduous and Evergreen	Pink to White . . . . .	4-30 "
<i>Rhododendrons</i> (including Azaleas)	Deciduous and Evergreen	Various . . . . .	1-18 "
<i>Spiræa prunifolia</i> fl. pl.	Deciduous	White . . . . .	6-8 "
<i>Syringa</i> (Lilacs) . . .	Deciduous	Various . . . . .	5-25 "
<i>Ulex europæus</i> fl. pl.	Evergreen	Golden . . . . .	3-5 "

## JUNE

Tree or Shrub	Deciduous or Evergreen	Colour of Flowers	Height
<i>Andromeda polifolia</i> . . .	Evergreen	Pink . . . . .	1-2 ft.
<i>Berberis polyantha</i> . . .	Deciduous	Yellow . . . . .	5-9 "
<i>Calycanthus floridus</i> . . .	Deciduous	Purple-red . . . . .	5-6 "
<i>Carpenteria californica</i> . . .	Evergreen	White . . . . .	8-10 "
<i>Cistus</i> (various) . . .	Evergreen	Red, White, etc. . . . .	2-8 "
† <i>Clematis</i> (various) . . .	Deciduous and Evergreen	Various . . . . .	5-20 "
<i>Cornus Kousa chinensis</i> . . .	Deciduous Climbers	White . . . . .	1-10 "
<i>Coronilla Emerus</i> . . .	Deciduous	Yellow . . . . .	6-8 "
* <i>Cratægus</i> (various) . . .	Deciduous	White, Pink and Scarlet	15-25 "
<i>Daphne alpina</i> . . .	Evergreen	White . . . . .	1-1½ "
<i>Deutzia</i> (various) . . .	Deciduous	White, Rose or Purple	3-12 "
<i>Diervilla</i> (various) . . .	Deciduous	White, Pink, Rose- crimson	4-6 "
<i>Genista</i> (various) . . .	Deciduous	Golden-yellow . . . . .	1-20 "



# SHRUBS AND TREES

## JUNE (continued)

Tree or Shrub	Deciduous or Evergreen	Colour of Flowers	Height
†Jasminum officinale .	Semi-ever- green	White . . . . .	Climber
Kalmia latifolia . . .	Evergreen	Rose and White . .	8-15 ft.
Kolkwitzia amabilis .	Deciduous	Pink . . . . .	4-6 "
Philadelphus (various) .	Deciduous	White . . . . .	3-15 "
Rhododendrons (various, including Azaleas)	Deciduous and Evergreen	Red to White . . .	1-18 "
Rosa (various species) .	Deciduous	Various . . . . .	1-10 "
Spiræa (various) . . .	Deciduous	Various . . . . .	1-30 "
Viburnum Opulus sterile	Deciduous	White . . . . .	8-12 "
Viburnum tomentosum plicatum	Deciduous	White . . . . .	5-10 "

## JULY

Tree or Shrub	Deciduous or Evergreen	Colour of Flowers	Height
*Æsculus californica .	Deciduous	White, tinted Pink .	10-20 ft.
*Berberidopsis corallina .	Evergreen	Coral-red . . . . .	10-20 "
Calluna vulgaris vars. .	Evergreen	Crimson to White .	1-2 "
Carpenteria californica .	Evergreen	White . . . . .	8-10 "
Cassinia fulvida . . .	Evergreen	White, with Yellow Stamens	3-6 "
*Catalpa bignonioides .	Deciduous	White, spotted Purple and Yellow	30-50 "
Ceanothus Gloire de Ver- sailles	Deciduous	Lavender . . . . .	4-5 "
*Chionanthus virginica .	Deciduous	White . . . . .	10-12 "
Cistus (various) . . .	Evergreen	Red, White, etc. . .	2-8 "
Colutea cruenta . . .	Deciduous	Red and Yellow . .	6-8 "
Coronilla Emerus . . .	Deciduous	Yellow . . . . .	6-8 "
Cytisus nigricans . . .	Deciduous	Yellow . . . . .	4-5 "
Daboëcia polifolia . . .	Evergreen	Rosy-purple . . . .	1-2 "
Erica ciliaris . . . . .	Evergreen	Rosy-red . . . . .	1-1 "
Lavandula spica . . . .	Evergreen	Mauve to White . .	2-4 "
Olearia Haastii . . . .	Evergreen	White . . . . .	5-8 "
Philadelphus (various) .	Deciduous	White . . . . .	3-15 "
Potentilla (various) . .	Deciduous	White or Yellow . .	1-4 "
Robinia hispida . . . .	Deciduous	Pink . . . . .	8-9 "
Romneya Coulteri . . .	Deciduous	White, with Golden- yellow Centres	5-8 "
Senecio compactus . . .	Evergreen	Yellow . . . . .	2-3 "
Spartium junceum . . .	Deciduous	Yellow . . . . .	8-10 "
Spiræa canescens . . .	Deciduous	White . . . . .	6-9 "
Spiræa Douglasii . . .	Deciduous	Purplish-rose . . .	5-6 "
Veronica Traversii . . .	Evergreen	White . . . . .	Up to 5 "
Yucca filamentosa . . .	Evergreen	Creamy-white . . .	3-6 "
Zenobia speciosa . . .	Semi-ever- green	White . . . . .	3-5 "

# CALENDAR OF BLOOM

## AUGUST

Tree or Shrub	Deciduous or Evergreen	Colour of Flowers	Height
<i>Abelia grandiflora</i> . .	Evergreen	Pink to White . .	3- 6 ft.
<i>Buddleia variabilis</i> vars.	Deciduous	Lilac . . . . .	10-20 "
<i>Cassinia fulvida</i> . .	Evergreen	White, with Yellow Stamens	3- 6 "
* <i>Catalpa bignonioides</i> .	Deciduous	White, spotted Purple, Yellow Blotch	30-50 "
<i>Ceanothus</i> (various) .	Deciduous	Blue, Rose, etc. . .	3- 8 "
<i>Ceratostigma Willmot-</i> <i>tianum</i>	Deciduous	Blue . . . . .	2- 4 "
<i>Choisya ternata</i> . . .	Evergreen	White, with Gold Stamens	6-10 "
<i>Clerodendron Fargesii</i> .	Deciduous	White and Green . .	3-12 "
<i>Coronilla Emerus</i> . .	Deciduous	Yellow . . . . .	6- 8 "
<i>Cytisus nigricans</i> . .	Deciduous	Yellow . . . . .	3- 4 "
<i>Daboecia polifolia</i> vars.	Evergreen	Rosy-purple . . . .	1- 2 "
<i>Erica</i> (various) . . .	Evergreen	Red, Pink, White . .	1-10 "
<i>Escallonia</i> (various) .	Evergreen	Red, Pink, White . .	6-18 "
<i>Fuchsia</i> (various) . .	Deciduous	Purple and Red . .	5- 7 "
<i>Hibiscus syriacus</i> vars.	Deciduous	Purple, Red, White, Pink or Blue	7-10 "
<i>Hydrangea paniculata</i> & var. <i>grandiflora</i>	Deciduous	Creamy-white . . .	3- 6 "
<i>Hypericum</i> (various) .	Deciduous and Evergreen	Yellow . . . . .	3 ins. to 6 ft.
<i>Lavandula spica</i> . . .	Evergreen	Mauve to White . .	2- 4 ft.
<i>Leycesteria formosa</i> .	Deciduous	Purple and White . .	4- 8 "
† <i>Lonicera Periclymenum</i> <i>serotina</i>	Deciduous	Creamy-yellow and Purple	Climber
* <i>Magnolia grandiflora</i> .	Evergreen	Creamy-white . . .	Up to 50 ft.
† <i>Passiflora cærulea</i> . .	Deciduous	Blue . . . . .	10-25 ft.
<i>Spiræa japonica</i> Anthony Waterer	Deciduous	Crimson . . . . .	2-2½ "
<i>Spiræa Margaritæ</i> . .	Deciduous	Pink . . . . .	4 "
<i>Yucca gloriosa</i> . . .	Evergreen	Greenish-white . .	6- 9 "

## SEPTEMBER TO OCTOBER

Tree or Shrub	Deciduous or Evergreen	Colour of Flowers	Height
* <i>Aralia chinensis</i> . . .	Deciduous	Creamy-white . . .	10-15 ft.
* <i>Arbutus Unedo</i> . . .	Evergreen	Creamy-pink . . .	10-30 "
<i>Buddleia variabilis</i> vars.	Deciduous	Lilac . . . . .	10-20 "
<i>Caryopteris Mastacanthus</i>	Deciduous	Pale Blue . . . . .	3-5 "
<i>Caryopteris tangutica</i> .	Deciduous	Purple-blue . . . .	3- 5 "
<i>Ceanothus hybrid</i> vars. .	Deciduous	Red, Blue, etc. . .	3- 8 "
<i>Ceratostigma Willmot-</i> <i>tianum</i>	Deciduous	Blue . . . . .	2- 4 "
† <i>Clematis</i> (various) . . .	Deciduous	Various . . . . .	5-20 "
<i>Clethra, alnifolia</i> . . .	Deciduous	White . . . . .	5- 8 "
<i>Elsholtzia Stauntonii</i> .	Deciduous	Purple-pink . . . .	4- 5 "

## SHRUBS AND TREES

### SEPTEMBER TO OCTOBER (continued)

Tree or Shrub	Deciduous or Evergreen	Colour of Flowers	Height
Erica (various) . . .	Evergreen	Purple, White, etc. . .	$\frac{1}{2}$ -8 ft.
Escallonia (various) . .	Evergreen	Red, Pink, White . .	6-18 "
Fatsia japonica . . .	Evergreen	Creamy-white . . .	8-12 "
Fuchsia (various) . . .	Deciduous	Purple and Red . .	5-7 "
Hibiscus syriacus vars. .	Deciduous	Purple, Red, White, Pink or Blue	7-10 "
Hypericum (various) .	Deciduous and Evergreen	Yellow . . . . .	3 ins. to 5 ft.
Indigofera Gerardiana .	Deciduous	Rosy-purple . . .	3-6 ft.
Ligustrum lucidum . .	Evergreen	White . . . . .	5-10 "
Ligustrum Quihoui . .	Deciduous	White . . . . .	8-10 "
†Lonicera Periclymenum serotina	Deciduous	Creamy-yellow and Purple	Climber
Osmanthus Aquifolium .	Evergreen	White . . . . .	4-10 ft.
Perowskia atriplicifolia .	Deciduous	Violet-blue . . .	3-5 "
Romneya Coulteri . .	Deciduous	White, with Golden- yellow Centres	5-7 or 8 ft.
*Sophora japonica . .	Deciduous	Creamy-white . . .	50-80 ft.
Veronica elliptica var. Autumn Glory	Evergreen	Deep Violet . . .	$1\frac{1}{2}$ -2 "
Veronica speciosa vars. .	Evergreen	Purple, Blue, etc. . .	2-4 "
Vitex Agnus-castus . .	Deciduous	Mauve . . . . .	6-10 "

### NOVEMBER AND DECEMBER

Tree or Shrub	Deciduous or Evergreen	Colour of Flowers	Height
*Arbutus Unedo vars. .	Evergreen	White or Pink and Rose tinted	10-30 ft.
Daphne Mezereum grandi- flora	Deciduous	Purplish-red . . .	3-4 "
Elæagnus glabra . . .	Evergreen	White . . . . .	15-20 "
Elæagnus macrophylla .	Evergreen	Silvery, Scaly Fruits .	6-10 "
Elæagnus pungens . .	Evergreen	Silvery-white . . .	10-15 "
Erica darleyensis . .	Evergreen	Rosy . . . . .	1-2 "
Fatsia japonica . . .	Evergreen	Creamy-white Flowers	8-12 "
Garrya elliptica . . .	Evergreen	Yellow or Greenish- white Flowers	10-12 "
†Jasminum nudiflorum .	Deciduous	Yellow . . . . .	Climber
*Prunus subhirtella autumnalis	Deciduous	White, pink tinted .	15-25 ft.
Viburnum Tinus . . .	Evergreen	White . . . . .	6-10 "

See also Shrubs or Trees with Coloured and Variegated Foliage, page 94,  
Shrubs and Trees with Coloured Berries and Fruits, page 96, also those with  
Coloured Bark and Stems, page 95.

## SHRUBS AND TREES

### SOME SHRUBS AND TREES FOR ORDINARY SOIL

<i>Acer</i> [various] (Maple)	<i>Larix</i> [various] (Larch)
<i>Ailanthus glandulosa</i> (Tree of Heaven)	<i>Lonicera</i> [various] (Eash Honey-suckle)
<i>Aucuba japonica</i> (Spotted Laurel)	<i>Magnolia</i> (various)
<i>Berberis</i> [various] (Barberry)	<i>Philadelphus</i> [various] (Mock Orange)
<i>Betula</i> [various] (Birch)	<i>Phillyræa</i> [various] (Mock Privet)
<i>Buddleia variabilis</i> vars.	<i>Prunus</i> [various] (Peach, Plum, Cherry, Almond, etc.)
<i>Cornus</i> [various] (Dogwood)	<i>Pyrus</i> [various] (Mountain Ash and Crab)
<i>Cotoneaster</i> (various)	<i>Ribes</i> [various] (Flowering Currant)
<i>Cratægus</i> [various] (Thorn)	<i>Rosa</i> [various] (Wild Rose)
<i>Cupressus</i> [various] (Cypress)	<i>Spartium junceum</i> (Spanish Broom)
<i>Cytisus</i> [various] (Broom)	<i>Spiræa</i> (various)
<i>Deutzia</i> (various)	<i>Staphylea</i> [various] (Bladder Nut)
<i>Diervilla</i> [various] (Weigela)	<i>Symphoricarpos racemosus</i> (Snowberry)
<i>Escallonia</i> (various)	<i>Syringa</i> [Named vars.] (Lilac)
<i>Euonymus europæus</i> (Spindle Tree)	<i>Taxus baccata</i> and vars. (Common Yew)
<i>Fagus</i> [various] (Beech)	<i>Thuya</i> (various)
<i>Forsythia</i> [various] (Golden Bell)	<i>Ulex europæus</i> fl. pl. (Double Gorse)
<i>Genista</i> [various] (Broom, Gorse)	<i>Viburnum</i> (various)
<i>Hippophæ rhamnoides</i> (Sea Buckthorn)	
<i>Hypericum</i> (various)	
<i>Ilex Aquifolium</i> vars. (Holly)	
<i>Laburnum</i> (various)	

See also Plants for Different Soils, page 135, *et seq.*

### SOME CONIFERS FOR SPECIMEN PLANTING

- Abies nobilis* (100–150 ft.) and *A. pectinata* (40–150 ft.)
- A. Pinsapo glauca* (40–100 ft.)
- Cedrus atlantica* and var. *glauca* (80–120 ft.)
- Cupressus Lawsoniana* and vars. (25–200 ft.)
- C. macrocarpa* (50–100 ft.) and *C. obtusa* (50–100 ft.)
- \**Juniperus communis hibernica* (Irish Juniper) (6–18 ft.)
- \**Libocedrus decurrens* (50 ft. or more)
- Picea excelsa* (50–100 ft.)
- P. pungens* (70–100 ft.)
- Pinus Laricio* and *P. sylvestris* (both 90–100 ft.)
- Pseudotsuga taxifolia* (Douglasii) (100–200 ft.)
- Sequoia gigantea* (Wellingtonia) (50 ft. or more)
- \**Taxus baccata fastigiata* (Irish Yew) (30–60 ft.)
- \**T. b. f. aurea* (Golden Irish Yew) (12–20 ft.)
- Thuya plicata pyramidalis* (up to 200 ft.)
- Tsuga Albertiana* and *T. canadensis* (both 70 ft. or more)

\*NOTE.—These are fastigate or upright-branched trees.

### DECIDUOUS TREES OF FASTIGIATE OR UPRIGHT HABIT

<i>Æsculus Hippocastanum pyramidalis</i> (Horse Chestnut)	<i>Populus alba pyramidalis</i> (White Poplar)
<i>Betula verrucosa</i> (alba) fastigiata (Birch)	<i>P. nigra italica</i> (Black Poplar)
<i>Carpinus Betulus columnaris</i> (Hornbeam)	<i>Pyrus pinnatifida fastigiata</i>
<i>Cratægus monogyna stricta</i> (Thorn or May)	<i>Quercus pedunculata fastigiata</i> (Oak)
<i>Fagus sylvatica fastigiata</i> (Beech)	<i>Robinia Pseudacacia fastigiata</i> (False Acacia)
<i>Liriodendron Tulipifera fastigiata</i> (Tulip Tree)	<i>Taxodium distichum</i>
	<i>Ulmus stricta Wheatleyi</i> (Guernsey Elm).

## SHRUBS AND TREES

### SOME SPECIMEN FLOWERING TREES OF MODERATE SIZE FOR LAWN PLANTING

<i>Æsculus carnea</i>	Briotii (Red Horse Chestnut)	<i>Prunus cerasifera</i> Pissardii
<i>Amelanchier lavis</i> (June Berry)		<i>Prunus Persica</i> Clara Meyer (Double Peach)
<i>Cratægus oxyacanthoides</i> fl. pl. albo (Double White Thorn)		<i>Prunus serrulata</i> Fugenzo (James H. Veitch)
<i>Cratægus oxyacanthoides</i> fl. pl. coccineo (Double Crimson Thorn)		<i>Prunus serrulata</i> Sekiyama (Red Japanese Cherry)
<i>Fraxinus Ornus</i> (Flowering Ash)		<i>Pyrus Aucuparia</i> (Mountain Ash)
<i>Laburnum Watereri</i>		<i>Pyrus Eleyi</i>
<i>Prunus Amygdalus</i> (Almond)		<i>Pyrus Scheideckeri</i>
<i>Prunus Avium</i> fl. pl. (Double Gean)		<i>Pyrus spectabilis</i> Kaido.

### PENDULOUS OR WEEPING TREES

<i>Alnus incana pendula</i> (Alder)	† <i>Prunus Amygdalus pendula</i>
<i>Betula verrucosa</i> Youngii (Young's Weeping Birch)	* <i>Prunus serrulata rosea</i> (Cheal's Cherry)
<i>Buxus sempervirens pendula</i> (Box)	† <i>Pyrus Aucuparia pendula</i> (Mountain Ash)
† <i>Cedrus Deodara pendula</i> (Deodar)	<i>Quercus palustris pendula</i> (Pinn Oak)
† <i>Cratægus monogyna pendula</i> (Thorn)	Roses (various)
† <i>Cupressus Lawsoniana intertexta</i>	* <i>Salix babylonica</i> (Willow)
<i>Cytisus scoparius pendula</i> (Broom)	<i>S. vitellina pendula</i>
* <i>Fagus sylvatica pendula</i> (Beech)	† <i>Sequoia gigantea pendula</i>
* <i>F. s. purpurea pendula</i> (Copper Beech)	<i>Sophora japonica pendula</i>
<i>Forsythia suspensa</i>	† <i>Taxus baccata pendula</i>
* <i>Fraxinus excelsior pendula</i> (Ash)	† <i>Tilia petiolaris</i> (White Weeping Lime)
<i>Ginkgo biloba pendula</i>	† <i>Tsuga canadensis pendula</i>
† <i>Laburnum vulgare pendulum</i>	* <i>Ulmus montana pendula</i> (Wych Elm).
* <i>Morus alba pendula</i> (White Mulberry)	
† <i>Picea excelsa pendula</i> (Spruce)	
<i>Populus tremula pendula</i> (Aspen)	

\* Make good arbours.

† Carry Blossom.

‡ Conifers.

### SOME TREES AND SHRUBS WITH LARGE, HANDSOME FOLIAGE

* <i>Acer macrophyllum</i>	* <i>Catalpa bignonioides</i>	* <i>Populus lasiocarpa</i>
* <i>Ailanthus glandulosa</i> (Tree of Heaven)	(Indian Bean Tree)	<i>Rhododendron</i>
<i>Aralia chinensis</i>	<i>Fatsia japonica</i>	Falconeri
<i>Berberis japonica</i>	<i>Hydrangea Sargentiana</i>	<i>Rhus typhina</i>
<i>Bealei</i>	* <i>Juglans</i> (Walnut)	<i>Rubus odoratus</i>
	<i>Magnolia Delavayi</i>	<i>Vitis Coignetia</i> .
	<i>Paulownia imperialis</i>	

### TREES AND SHRUBS RABBITS DO NOT LIKE

<i>Azalea pontica</i>	<i>Fuchsias</i>	<i>Ruscus</i> (Butcher's Broom)
<i>Bambusa Metake</i> and <i>B. palmata</i>	* <i>Hawthorns</i>	<i>Spiræas</i>
<i>Berberis</i> (Barberry)	<i>Hippophæ</i> (Sea Buckthorn)	<i>Viburnum</i> (Guelder Rose).
<i>Buxus</i> (Box)	<i>Laurustinus</i>	
<i>Cornus</i> (Dogwood)	<i>Rhododendrons</i>	

\* Denotes Trees.

## COLOURED FOLIAGE

### A SELECTION OF SHRUBS AND TREES WITH COLOURED FOLIAGE

#### RED OR PURPLE FOLIAGE

* <i>Acer colchicum rubrum</i> . . . . .	Young Growth Bright Crimson
<i>Berberis vulgaris foliis purpureis</i> . . .	Rich Purple Foliage
* <i>Betula verrucosa purpurea</i> . . . . .	Deep Purple Foliage
<i>Corylus maxima atropurpurea</i> . . . . .	Rich Purple Foliage
<i>Diervilla florida foliis purpureis</i> . . .	Purple Foliage
<i>Euonymus europæus atropurpureus</i> . . .	Dark Purple Foliage
* <i>Fagus sylvatica atropurpurea</i> . . . . .	Dark Purple Foliage
* <i>Prunus cerasifera Pissardii</i> and var. <i>nigra</i>	Deep Bronze-purple Foliage
* <i>Pyrus Aldenhamensis</i> and <i>P. purpurea</i>	Purplish Foliage
* <i>Pyrus Eleyi</i> . . . . .	Coppery-red Foliage
* <i>Quercus pedunculata purpurascens</i> . . .	Dark Purple Foliage
<i>Rhododendron ponticum purpureum</i> . . .	Purple Foliage
<i>Rhus Cotinus foliis purpureis</i> . . . . .	Wine-coloured Foliage

#### GOLDEN OR YELLOW FOLIAGE

* <i>Acer japonicum aureum</i> . . . . .	Pale Golden-yellow Foliage
<i>Calluna vulgaris aurea</i> . . . . .	Golden Foliage
*† <i>Cedrus Deodara aurea</i> . . . . .	Golden Foliage
<i>Corylus Avellana aurea</i> . . . . .	Yellow Foliage
*† <i>Cupressus Lawsoniana darleyensis</i> , etc.	Golden Foliage
<i>Diervilla japonica Looymansii aurea</i> . .	Bright Yellow Foliage
* <i>Fagus sylvatica Zlatia</i> . . . . .	Golden Foliage
<i>Ilex Aquifolium aurea medio-picta</i> . . .	Golden Foliage
*† <i>Juniperus chinensis aurea</i> . . . . .	Golden Foliage
<i>Ligustrum ovalifolium foliis aureis</i> . . .	Golden-yellow Leaves
<i>Philadelphus coronarius foliis aureis</i> . .	Yellow Foliage
* <i>Populus serotina aurea</i> . . . . .	Clear Golden-yellow Foliage
* <i>Quercus pedunculata Concordia</i> . . . .	Foliage suffused Golden-yellow
<i>Ribes sanguineum Brocklebankii</i> . . . .	Golden Foliage
* <i>Robinia Pseudacacia aurea</i> . . . . .	Golden Foliage
<i>Sambucus nigra foliis aureis</i> . . . . .	Bright Golden Foliage
*† <i>Taxus baccata aurea</i> , <i>adpressa aurea</i> , and <i>fastigiata aurea</i>	Golden Foliage

#### WHITE, SILVER OR GREY FOLIAGE

*† <i>Abies concolor violacea</i> and <i>nobilis glauca</i>	Glaucous Leaves
<i>Atriplex canescens</i> and <i>Halimus</i> . . . .	Silvery-white Foliage
*† <i>Cedrus atlantica glauca</i> . . . . .	Silvery-blue
*† <i>Cupressus Lawsoniana Triomphe de</i> <i>Boskoop elegantissima</i> & <i>Silver Queen</i>	Silvery-grey Foliage
*† <i>Cupressus pisifera squarrosa</i> . . . . .	Glaucous-blue Foliage
*† <i>Cupressus pisifera squarrosa sulphurea</i>	Foliage of a Sulphur Hue
<i>Elæagnus macrophylla</i> . . . . .	Silvery Foliage
<i>Hippophæ rhamnoides</i> . . . . .	Silvery Foliage
<i>Ilex Aquifolium argentea regina Silver</i> <i>Queen</i>	Silvery Foliage
*† <i>Juniperus chinensis Fortunei</i> & <i>glauca</i>	Silvery-grey Foliage
*† <i>Picea pungens glauca</i> . . . . .	Greyish-blue Foliage
*† <i>Pinus excelsa</i> . . . . .	Greyish-green Foliage
<i>Pyrus salicifolia</i> . . . . .	Silvery Foliage
<i>Salix alba argentea</i> . . . . .	Silvery-grey Foliage
<i>Santolina Chamæcyparissus</i> . . . . .	Greyish-white Foliage

\* Denotes trees. † Denotes conifers. For climbers and dwarf shrubs, see separate lists, pages 121 and 107.

## SHRUBS AND TREES

### SOME GOOD SHRUBS AND TREES WITH VARIEGATED FOLIAGE

#### SILVER OR WHITE VARIEGATIONS

<i>Acanthopanax spinosum variegatum</i> . . . . .	Leaflets edged White
<i>Acer Negundo variegatum</i> . . . . .	White Variegations
<i>Buxus sempervirens argentea</i> . . . . .	Silvery Variegations
<i>Cornus alba sibirica variegata</i> . . . . .	Silvery-white Variegations
<i>Cypressus obtusa alba variegata</i> . . . . .	Silvery-white Markings
<i>Diervilla florida variegata</i> . . . . .	Silvery Variegations
<i>Elæagnus pungens variegata</i> . . . . .	Cream or White Variegations
<i>Euonymus radicans Silver Gem</i> . . . . .	Silvery Leaves, bordered Pink
<i>Fraxinus excelsior argentea variegata</i> . . . . .	Silvery Variegations
<i>Hedera canariensis variegata</i> . . . . .	Silvery Variegations
<i>Ilex Aquifolium argentea marginata</i> . . . . .	Silvery Variegations
<i>Juniperus Sabina variegata</i> . . . . .	Leaves mottled Creamy-white
<i>Kerria japonica variegata</i> . . . . .	Silvery-grey Leaves, margined White
<i>Osmanthus Aquifolium argentea variegatus</i> . . . . .	Silvery Variegations
<i>Philadelphus coronarius variegatus</i> . . . . .	Silvery Variegations
<i>Pieris japonica variegata</i> . . . . .	Silvery Variegations
* <i>Thuja dolabrata variegata</i> . . . . .	Creamy-white Variegations
<i>Vinca minor foliis argenteis</i> . . . . .	White Variegations

#### GOLDEN OR YELLOW VARIEGATIONS.

* <i>Acer Negundo elegantissimum</i> . . . . .	Golden Variegations
<i>Arundinaria auricoma</i> . . . . .	Golden Variegations
<i>Aucuba japonica variegata</i> . . . . .	Mottled Yellow and Green
<i>Buxus sempervirens aurea maculata</i> . . . . .	Mottled Golden-yellow
<i>Cornus alba Spathii</i> . . . . .	Golden Variegations
* <i>Cupressus Lawsoniana variegata</i> . . . . .	Golden Markings
<i>Elæagnus pungens aureo-variegata</i> . . . . .	Bright Golden Variegations
<i>Euonymus japonicus aureo-pictus</i> . . . . .	Narrow Leaf, a Golden Variety
<i>Ilex Aquifolium aurea regina</i> and <i>Golden King</i> . . . . .	Golden Variegations
<i>Ilex Aquifolium ovata aurea</i> . . . . .	Golden-margined Leaves
<i>Libocedrus decurrens variegata</i> . . . . .	Leaves mottled Golden-yellow
<i>Ligustrum ovalifolium variegatum</i> . . . . .	Golden Variegations
* <i>Liriodendron Tulipifera aureo-variegata</i> . . . . .	Golden Variegations
<i>Lonicera japonica aureo-reticulata</i> . . . . .	Leaves mottled Golden-yellow
<i>Osmanthus Aquifolium aureus</i> . . . . .	Leaves margined Gold
<i>Salix cinerea tricolor</i> . . . . .	Golden Variegations
<i>Sambucus nigra aureo-marginata</i> . . . . .	Leaves margined Golden-yellow
<i>Taxus baccata Dovastonii aurea variegata</i> . . . . .	Mottled Golden-yellow

\* Denotes trees.

## COLOURED FOLIAGE AND BARK

### SOME TREES AND SHRUBS WITH ATTRACTIVELY-TINTED FOLIAGE IN AUTUMN

* <i>Acer japonicum</i> vars. and <i>rubrum</i>	Crimson and Red
* <i>Amelanchier laevis</i>	Red, Golden and Yellow
<i>Berberis Thunbergii</i>	Scarlet-crimson and Orange-yellow
* <i>Crataegus Crus-galli</i> and <i>prunifolia</i> and vars.	Red and Orange
<i>Enkianthus campanulatus</i>	Red, Orange and Yellow
<i>Euonymus europæus</i>	Bright Ruddy Tints
<i>Fothergilla major</i>	Rich Yellow
* <i>Ginkgo biloba</i>	Golden-yellow
* <i>Gleditschia triacanthos</i>	Bright Yellow
* <i>Liquidambar styraciflua</i>	Ruddy-brown and Orange
* <i>Liriodendron tulipifera</i>	Golden-yellow
* <i>Nyssa sylvatica</i>	Orange and Scarlet
* <i>Parrotia persica</i>	Rich, Golden-crimson Shades
* <i>Pyrus arbutifolia</i>	Red
* <i>Quercus coccinea splendens</i>	Scarlet-crimson Tints
<i>Rhodendron</i> (Deciduous Azaleas)	Shades of Scarlet, Red, Orange
<i>Rhus cotinoides</i> , <i>trichocarpa</i> and <i>typhina</i>	Scarlet, Claret and Orange
<i>Ribes aureum</i> and var. <i>aurantiacum</i>	Golden-bronze and Red

\* Denotes trees.

### SHRUBS AND TREES WITH COLOURED STEMS AND BARK

* <i>Acer capillipes</i> , <i>Davidii</i> and <i>Hersii</i>	Striped with White, jagged Lines
* <i>Acer griseum</i>	Mahogany-brown, peeling Bark
* <i>Acer Maximowiczii</i>	Greenish Bark and Red Twigs
* <i>Acer pennsylvanicum</i> and var. <i>erythrocladum</i>	Bright Crimson Twigs
* <i>Arbutus Andrachne</i> and <i>andrachnoides</i>	Reddish-brown Stems
<i>Berberis dictyophylla albicaulis</i>	Silvery-white Stems
<i>Berberis virescens</i>	Bright Red Stems
* <i>Betula cærulea</i>	Pinkish-white Bark and Reddish-brown Twigs
* <i>Betula lutea</i>	Yellow Bark, tinted Orange-brown
* <i>Betula utilis</i>	Creamy-white Bark and Orange-brown Twigs
* <i>Betula verrucosa</i>	Silver Bark
<i>Cornus alba</i> and vars.	Rich Red Bark
<i>Cornus stolonifera flaviramea</i>	Yellow Bark
* <i>Fraxinus excelsior aurea</i>	Golden-yellow Bark
<i>Kerria japonica</i>	Bright Green Stems
* <i>Prunus canescens</i>	Mahogany
* <i>Prunus serrulata tibetica</i>	Light Mahogany-coloured Trunks
<i>Rubus biflorus</i> and <i>biflorus quinqueflorus</i>	White Stems
<i>Rubus Giraldianus</i> , <i>lasiostylus</i> and <i>thibetanus</i>	Bluish-white Stems
* <i>Salix daphnoides</i>	Bluish-white Branches
* <i>Salix triandra</i>	Purple-brown Branches
* <i>Salix vitellina</i>	Golden-yellow Branches
* <i>Salix vitellina</i> var. <i>britzensis</i>	Orange-scarlet Branches
<i>Spartium junceum</i>	Green Twigs

\* Denotes trees.



## SHRUBS AND TREES

### A FEW SHRUBS AND TREES WITH COLOURED FRUITS OR BERRIES

Shrub or Tree	Deciduous or Evergreen	Height in feet	Colour and Nature of Fruit
<i>Acanthopanax Simonii</i>	Deciduous	5-6	Compound Foliage, Black Fruit
<i>Ægle sepiaria</i> . . .	Deciduous	8-10	Small Orange-like Fruits
† <i>Arbutus Unedo</i> . . .	Evergreen	10-30	Orange to Red Edible Berries
* <i>Aucuba japonica</i> . . .	Evergreen	3-8	Large Bright Red Berries
<i>Berberis aggregata</i> Pratti	Deciduous	5-6	Coral-red Fruits
<i>Berberis Darwinii</i> . .	Evergreen	8-12	Plum-purple Fruits
<i>Berberis rubrostilla</i> . .	Deciduous	4-5	Coral-red Fruits
<i>Berberis Wilsonæ</i> . . .	Deciduous	3-4	Coral-red Berries
<i>Celastrus articulatus</i> . .	Deciduous	Climber up to 4'	Golden-yellow Fruits, Exposed Scarlet Seeds
<i>Clerodendron</i> <i>trichotomum</i>	Deciduous	10-12	Blue-black Fruits
<i>Colutea arborescens</i> . .	Deciduous	6-10	Brownish Seed Pods
<i>Cornus Mās</i> . . .	Deciduous	10-25	Red Berries
<i>Cotoneaster frigida</i> . .	Deciduous	15-20	Large Clusters Crimson Berries
<i>Cotoneaster Henryana</i>	Evergreen	10-12	Red Fruits
<i>Cotoneaster microphylla</i>	Evergreen	1-3	Red Berries
<i>Cotoneaster salicifolia</i> var. <i>floccosa</i>	Evergreen	6-9	Red Fruits
† <i>Cratægus Crus-galli</i> . .	Deciduous	15-25	Deep Red Fruits
† <i>Cydonia japonica</i> . . .	Deciduous	4-9	Large Greenish-yellow Fruits
<i>Elæagnus multiflora</i> . .	Deciduous	6-10	Orange Fruits
<i>Euonymus latifolius</i> . .	Deciduous	10-12	Large Rosy-red Fruits
<i>Gaultheria procumbens</i>	Evergreen	Creepg.	Large Bright Red Berries
<i>Gaultheria Shallon</i> . .	Evergreen	3-6	Dark Purple Fruits
*† <i>Hippophæ rhamnoides</i>	Deciduous	10-40	Orange-coloured Fruits
*† <i>Ilex Aquifolium</i> . . .	Evergreen	10-60	Red Berries
<i>Leycesteria formosa</i> . .	Deciduous	6-8	Purple-black Fruits
<i>Lycium chinense</i> . . .	Deciduous	5-10	Orange-scarlet egg-like Fruits
<i>Mahonia Aquifolium</i> . .	Evergreen	2-4	Blue or Bluish-black Berries
<i>Pernettya mucronata</i>	Evergreen	2-6	White, Purple or Crimson Fruits
<i>Pyracantha angustifolia</i>	Evergreen	10-15	Orange-yellow Berries
<i>Pyracantha coccinea</i> . .	Evergreen	10-15	Bright Red Berries
<i>Pyracantha Rogersiana</i>	Evergreen	6-10	Orange and Scarlet Berries
<i>Pyrus baccata</i> . . .	Deciduous	20-30	Bright Red Berries
† <i>Pyrus purpurea</i> . . .	Deciduous	15-25	Purple Fruits
† <i>Pyrus Malus</i> (various)	Deciduous	5-30	Red or Golden Fruits
† <i>Rhus typhina</i> . . .	Deciduous	10-25	Brightly-coloured Berries
<i>Rosa alpina</i> . . .	Deciduous	4-8	Rich Red Bottle-shaped Hips
<i>Rosa Davidii</i> . . .	Deciduous	7-10	Red Fruits
<i>Rosa microphylla</i> . . .	Deciduous	5-7	Yellow, Thorny Fruits
<i>Rosa pomifera</i> . . .	Deciduous	4-6	Hairy, Red Fruits
* <i>Ruscus aculeatus</i> . . .	Evergreen	2-3	Bright Red Berries
* <i>Skimmia japonica</i> . . .	Evergreen	3	Red Berries
<i>Symphoricarpus race-</i> <i>mosus lævigatus</i>	Deciduous	7-10	Clusters of Round White Berries
<i>Viburnum Opulus</i> . . .	Deciduous	6-8	Scarlet Berries

\* There are both male and female plants of this genus, only the female, when planted in proximity to a male, having attractive fruits. † Denotes trees.



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COLLARETTE DAHLIAS, "O.M. COURAGE" AND "PADDY."  
M.M.S. G



## TREES AND SHRUBS

### CATKIN-BEARING TREES AND SHRUBS

#### CATKINS IN SPRING

<i>Alnus</i> (Alder) <i>glutinosa</i>	<i>Castanea sativa</i> (Sweet or Spanish Chestnut)
" <i>incana</i>	<i>Corylus</i> (Hazel or Filbert)
" <i>japonica</i>	" <i>Avellana</i>
" <i>maritima</i> } (Catkins in Autumn)	" <i>Columna</i>
" <i>nitida</i> }	" <i>maxima</i>
" <i>sitchensis</i>	* <i>Garrya elliptica</i>
<i>Betula</i> (Birch) <i>Maximowiczii</i>	<i>Populus</i> (Poplar)
" <i>nigra</i>	" <i>tremula</i>
" <i>papyrifera</i>	" <i>pendula</i>
" <i>pubescens</i>	<i>Salix</i> (Willow)
" <i>verrucosa</i>	*    " <i>Bockii</i> (Catkins in Autumn)
<i>Carpinus</i> (Hornbeam)	" <i>Caprea</i> (Goat Willow or "Palm")
" <i>Betulus</i>	
" <i>japonicus</i>	

Shrubs are indicated by an \*

### A FEW WINTER-FLOWERING TREES AND SHRUBS

Tree or Shrub	Height	Colour of Flowers	Period of Bloom
* <i>Arbutus andrachnoides</i> . . .	15-30 ft.	White . . . . .	Winter
<i>Berberis japonica</i> . . .	10 "	Yellow . . . . .	Feb.-March
<i>Chimonanthus fragrans grandiflorus</i> . . .	10-15 "	Brownish-yellow, Stained Purple	Dec.-March
<i>Cornus Mas</i> . . . . .	10-25 "	Yellow . . . . .	February
<i>Corylopsis spicata</i> . . .	5- 6 "	Yellow . . . . .	Feb., March and April
* <i>Cratægus monogyna</i> var. <i>præcox</i>	15-25 "	White . . . . .	Oct.-March
<i>Cydonia japonica</i> vars. . .	4- 9 "	White, Yellow, Rose-pink, or Red	Feb.-March
<i>Daphne Mezereum grandiflora</i>	3- 4 "	Purplish-red . . . .	Oct.-Feb.
<i>Elæagnus pungens</i> . . .	10-15 "	Silvery-white . . . .	Oct.-Nov.
<i>Erica carnea</i> vars. . . .	½- 1 "	Rosy-pink or White . .	Jan.-April
<i>Erica darleyensis</i> . . .	1- 2 "	Rosy-red . . . . .	Nov.-April
<i>Garrya elliptica</i> . . . .	10-12 "	Silvery-yellow, or Greenish-white	Nov.-March
<i>Hamamelis mollis</i> . . .	8-10 "	Golden-yellow . . . .	Dec.-March
<i>Jasminum nudiflorum</i> . .	Climber	Yellow . . . . .	Nov.-Feb.
<i>Lonicera fragrantissima</i>	5- 6 ft.	White . . . . .	Dec.-March
* <i>Prunus subhirtella autumnalis</i>	15-25 "	Pink-tinted White . .	Oct.-March
<i>Rhododendron Christmas Cheer</i>	3- 4 "	Pale Rose . . . . .	Jan.-March
<i>Rhododendron mucronulatum</i>	4- 6 "	Rose-purple . . . . .	Jan.-Feb.
<i>Rhododendron Nobleanum</i>	8-12 "	Rose-scarlet . . . . .	Jan.-March
<i>Ulex nanus</i> . . . . .	18 in.	Yellow . . . . .	Aug.-Nov.
<i>Viburnum Tinus</i> (Laurustinus)	8 ft.	White . . . . .	Nov.-March
<i>Viburnum fragrans</i> . . .	6 "	Pink-tinted White . .	Nov.-March

\* Denotes trees.

NOTE.—In the case of all these winter-flowering trees and shrubs, the period of blooming is influenced considerably by the severity of the weather.

## TREES AND SHRUBS

### A SELECTION OF EARLY-FLOWERING TREES AND SHRUBS

- |  |   |
|--|---|
| <p>*<i>Arbutus Andrachne</i>, White (March-April)<br/> <i>Azara microphylla</i>, Pale Yellow (Feb.-March)<br/> <i>Berberis japonica</i>, Yellow (Feb.-March)<br/> <i>Chimonanthus fragrans</i>, Yellow and Purple (Dec.-March)<br/> <i>Cornus Mas</i>, Yellow (Feb.)<br/> <i>Corylopsis spicata</i>, Yellow (Feb.-April)<br/> <i>Cydonia japonica</i>, White-red, etc., (Jan.-March)<br/> <i>Daphne Mezereum</i>, Purplish-red (Jan.-March)<br/> <i>Erica carnea</i>, vars. <i>alba</i>, <i>James Backhouse</i>, <i>King George</i>, <i>Vivelli</i>, White-red (Jan.-April)<br/> <i>Erica darleyensis</i>, Rosy (Nov.-April)<br/> <i>Forsythia suspensa</i>, etc., Yellow (March-April)<br/> <i>Garrya elliptica</i>, Silvery-yellow or Greenish-white (Nov.-March)<br/> <i>Hamamelis mollis</i>, Golden-yellow (Dec.-March)<br/> <i>Lonicera fragrantissima</i> and <i>Standishii</i>, Creamy-white (Dec.-March)<br/> <i>Mahonia Aquifolium</i>, Golden-yellow (March-April)<br/> <i>*Parrotia persica</i>, Red (Jan.-March)<br/> <i>Pieris floribunda</i>, White (March-April)</p> | <p>*<i>Prunus Amygdalus</i>, Rosy-pink (Feb.-March)<br/> <i>*Prunus triloba</i> fl. pl., Rosy-pink (March-April)<br/> <i>*Prunus subhirtella autumnalis</i>, White (Nov.-April)<br/> <i>*Prunus Davidiana</i>, Red (Feb.-Mar.)<br/> <i>Rhododendron arboreum</i>, Red (Jan.-March)<br/> <i>Rhododendron Christmas Cheer</i>, and <i>Rosa Mundi</i>, Pale Rose (Jan.-March)<br/> <i>Rhododendron dauricum</i>, mucronulatum, and <i>parvifolium</i>, Rosy-purple (Jan.-March)<br/> <i>Rhododendron moupinense</i>, White (Red Spots) (Jan.-March)<br/> <i>Rhododendron Nobleanum</i>, Rosy-scarlet (Jan.-Feb.)<br/> <i>Rhododendron præcox</i>, Rosy-lilac (Feb.-March)<br/> <i>Salix Caprea</i>, Yellow (March-April)<br/> <i>Spiræa Thunbergii</i>, White (March)<br/> <i>Stachyurus præcox</i>, Greenish-yellow (Feb.-April)<br/> <i>Viburnum fragrans</i>, Pink-tinted White (Nov.-March)<br/> <i>Viburnum grandiflorum</i>, Citron (Feb.-March)<br/> <i>Viburnum Tinus</i> (<i>Laurustinus</i>), White (Nov.-March)</p> |
|--|---|

\* Denotes trees.

### TREES TO PLANT FOR SCREENS AND WIND-BREAKS

- |   |   |
|---|---|
| <p><i>Acer platanoides</i> (Norway Maple) and <i>A. Pseudo-platanus</i> (Sycamore)<br/> <i>Betula alba verrucosa</i> (Silver Birch)<br/> <i>Carpinus Betulus</i> (Hornbeam)<br/> <i>Cratægus oxyacantha</i> and vars. (May or Thorn)<br/> <i>Cupressus Lawsoniana</i> and <i>C. macrocarpa</i><br/> <i>Fraxinus excelsior heterophylla</i><br/> <i>Ilex Aquifolium</i> (Holly)<br/> <i>Larix europæa</i> (Larch)<br/> <i>Pinus montana</i>, <i>Laricio</i> and <i>Laricio nigricans</i></p> | <p><i>Pinus Pinaster</i>, and <i>radicans</i> (syn. <i>insignis</i>)<br/> <i>Pinus sylvestris</i> (Scotch Fir or Pine)<br/> <i>Populus alba nivea</i> and <i>alba fastigiata</i><br/> <i>Populus nigra italica</i> (Lombardy Poplar)<br/> <i>Populus serotina</i><br/> <i>Prunus Pissardii</i> (Purple-leaved Plum)<br/> <i>Quercus Ilex</i> (Holm Oak)<br/> <i>Taxus baccata</i> and vars. (Yew)<br/> <i>Thuya occidentalis</i> and <i>plicata</i><br/> <i>Tilia vulgaris</i> (Lime)<br/> <i>Ulmus montana</i> (Wych Elm).</p> |
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## TREES AND SHRUBS

### TREES AND SHRUBS FOR WINDSWEPT AREAS

- |  |  |
|--|--|
| * <i>Acer Pseudoplatanus</i> (Sycamore)  | * <i>Populus alba nivea</i> , and <i>P. canescens</i> (White and Grey Poplars) |
| * <i>Alnus glutinosa</i> (Alder)   | * <i>Prunus spinosa</i> (Blackthorn)   |
| <i>Aucuba japonica</i>   | * <i>Quercus pedunculata</i> (Oak)   |
| <i>Berberis vulgaris</i>   | <i>Ruscus aculeatus</i> (Butcher's Broom)                                      |
| * <i>Crataegus</i> (Hawthorn)  | * <i>Sambucus nigra</i> (Elder)  |
| <i>Ilex Aquifolium</i>   | <i>Spartium junceum</i> (Spanish Broom)  |
| * <i>Pinus Laricio</i> and <i>P.L. var nigricans</i> (Corsican and Austrian Pines) | <i>Ulex europæus</i> fl. pl. (Double Gorse)                                    |
| * <i>Pinus montana</i> (Dwarf Mountain Pine)                                       | * <i>Ulmus montana</i> (Wych Elm).   |

\* Denotes Trees.

### SOME SHRUBS AND TREES WHICH BENEFIT FROM WALL OR OTHER PROTECTION

NOTE.—Although not fully hardy in the open, some of these subjects may be grown outside, even in the north of Great Britain, if they are afforded the protection of a wall. For Climbing Shrubs, see also List of Climbing Shrubs for Walls of Different Aspects.

- |  |                                    |
|--|------------------------------------|
| <i>Abutilon vitifolium</i>                     | <i>Garrya elliptica</i>            |
| <i>Buddleia Colvillei</i>                      | <i>Itea ilicifolia</i>             |
| <i>Caryopteris</i> (several)                   | <i>Leptospermum</i> (several)      |
| <i>Ceanothus</i> (several)                     | <i>Lippia citriodora</i> (Aloysia) |
| <i>Choisya ternata</i>                         | <i>Ozothamnus rosmarinifolius</i>  |
| * <i>Clethra arborea</i>                       | <i>Photinia</i> (several)          |
| <i>Coronilla glauca</i>                        | <i>Punica granatum</i>             |
| <i>Escallonia</i> (several less hardy species) | * <i>Sophora tetraptera</i>        |
| <i>Fabiana imbricata</i>                       | <i>Tecoma radicans</i>             |
| <i>Fuchsias</i> (hardy species and vars.)      | <i>Teucrium fruticans</i>          |
|  | <i>Vitex Agnus-castus</i>          |

\* Denotes Trees.

### SOME SHRUBS AND TREES FOR THE SOUTH AND WEST OF GREAT BRITAIN AND FOR IRELAND

- |                                    |   |
|------------------------------------|---|
| <i>Abelia floribunda</i>           | * <i>Eucryphia cordifolia</i>                 |
| <i>Abutilon vitifolium</i>         | <i>Fabiana imbricata</i>                      |
| * <i>Acacia</i> (several)          | * <i>Fremontia californica</i>                |
| * <i>Arbutus Uvedo</i> , etc.      | <i>Fuchsias</i> (hardy species and varieties) |
| <i>Azara microphylla</i>           | <i>Grevillea rosmarinifolia</i>               |
| † <i>Berberidopsis corallina</i>   | * <i>Griselinia littoralis</i>                |
| <i>Buddleia Colvillei</i>          | <i>Hydrangea hortensis</i> and vars.          |
| <i>Camellia reticulata</i>         | <i>Leptospermum scoparium</i> , etc.          |
| <i>Carpenteria californica</i>     | <i>Lippia citriodora</i>                      |
| <i>Caryopteris</i> (several)       | * <i>Magnolia Campbellii</i>                  |
| <i>Ceanothus</i> (several)         | <i>Myrtus communis</i>                        |
| <i>Choisya ternata</i>             | <i>Nerium Oleander</i>                        |
| * <i>Clethra arborea</i>           | <i>Olearia dentata</i>                        |
| * <i>Cornus capitata</i>           | <i>Photinia</i> (various)                     |
| <i>Coronilla glauca</i>            | <i>Pittosporum</i> (various)                  |
| <i>Cytisus racemosus</i>           | <i>Punica granatum</i>                        |
| <i>Desfontainea spinosa</i>        | <i>Senecio Grayii</i>                         |
| † <i>Ecchremocarpus scaber</i>     | * <i>Sophora tetraptera</i>                   |
| <i>Embothrium coccineum</i>        | <i>Tricuspidaria dependens</i>                |
| <i>Escallonia macrantha</i> , etc. | <i>Veronicas</i> (in great variety).          |
| * <i>Eucalyptus</i> (numerous)     |   |

\* Denotes Trees.

† Denotes Climbers.

## TREES AND SHRUBS

### A SELECTION OF HARDY TREES AND SHRUBS FOR FORCING

<i>Acer palmatum</i> vars.	<i>Prunus Persica</i> (Double Peaches)
<i>Amelanchier canadensis</i>	vars. <i>Clara Meyer</i> , flore albo pleno, flore rubro pleno, and magnifica
<i>Amygdalus persica</i>	<i>Prunus serrulata</i> (Japanese Cherry)
<i>Azalea</i> ( <i>see</i> <i>Rhododendrons</i> )	<i>Prunus triloba</i> fl. pl.
<i>Andromeda floribunda</i>	<i>Pyrus Scheideckeri</i>
<i>Ceanothus Veitchianus</i>	<i>Rhododendrons</i> : <i>Cunningham's</i>
<i>Cerasus pesudocerasus</i> "	<i>White</i> , <i>Pink Pearl</i> , <i>Nobleanum</i> , <i>fastuosum</i> fl. pl., <i>Prince Camille de Rohan</i> , etc.
<i>Chimonanthus fragrans</i>	<i>Rhododendron præcox</i>
* <i>Choisya ternata</i>	<i>Rhododendron</i> ( <i>Azalea</i> ) <i>molle</i> vars.
<i>Corylopsis spicata</i>	<i>Rhododendron</i> ( <i>Azalea</i> ) <i>sinense</i> vars.
<i>Cytisus præcox</i>	<i>Rhododendron</i> ( <i>Azalea</i> ) <i>Ghent</i> vars.
<i>Daphne Mezereum</i>	<i>Ribes sanguineum</i>
<i>Deutzia gracilis</i> and vars.	<i>Roses</i>
<i>Forsythia spectabilis</i>	<i>Spiræa arguta</i>
<i>Hydrangea paniculata</i> var. <i>grandiflora</i>	* <i>Spiræa Van Houttei</i>
<i>Kalmia latifolia</i>	<i>Syringa Charles X</i>
<i>Kerria japonica</i> flore pleno	<i>Syringa Marie Legraye</i>
<i>Laburnum vulgare</i>	<i>Viburnum Carlesii</i>
<i>Leycesteria</i>	<i>Viburnum tomentosum</i> var. <i>plicatum</i>
<i>Lilac</i> ( <i>see</i> <i>Syringa</i> )	<i>Weigela</i>
* <i>Lonicera fragrantissima</i>	<i>Wistaria sinensis</i> .
<i>Magnolia Soulangeana</i>	
<i>Magnolia stellata</i>	
<i>Mespilus canadensis</i>	
<i>Pæonia Moutan</i>	
<i>Philadelphus Lemoinei erectus</i>	

### SHRUBS THAT NEED LITTLE PRUNING

<i>Aucuba</i>	<i>Cornus sanguinea</i>	<i>Fremontia californica</i>
<i>Berberis Darwinii</i>	<i>Cotoneaster</i> vars.	<i>Kalmia</i> vars.
<i>Berberis vulgaris</i>	<i>Cratægus pyracantha</i>	<i>Philadelphus</i> vars.
<i>Buckleya distichophylla</i>	<i>Cydonia japonica</i>	<i>Rhododendrons</i>
<i>Buddleia globosa</i>	<i>Daphne Mezereum</i>	<i>Ribes</i> vars.
<i>Cassiope tetragona</i>	<i>Deutzia crenata</i>	<i>Robinia</i>
<i>Chimonanthus fragrans</i>	<i>Euonymus japonica</i>	<i>Weigela</i> vars.
	<i>Eurya japonica</i>	

These shrubs will continue to be of interest all the year round, and will increase in beauty from year to year.

See also *Shrubs and Trees for the Rock Garden*, page 107, *Smoky Town Garden*, page 127, for *Chalk Soil*, *Sandy Soil*, *Loam*, *Moist Sites*, etc. etc., pages 135-145.

### SOME TREES AND SHRUBS THAT ARE DIFFICULT TO TRANSPLANT

<i>Abelia grandiflora</i>	* <i>Cornus florida</i>	* <i>Liriodendron tulipifera</i>
* <i>Betula</i> [various] ( <i>Birch</i> )	* <i>Cratægus</i>	<i>Mahonia Aquitoliun</i>
<i>Buxus sempervirens</i> ( <i>Box</i> )	* <i>Fagus sylvatica</i> ( <i>Beech</i> )	* <i>Pyrus</i> [various] ( <i>Crab</i> )
<i>Calluna vulgaris</i>	<i>Kalmia latifolia</i>	* <i>Rhamnus cathartica</i> ( <i>Buckthorn</i> )
* <i>Carpinus betulus</i>	* <i>Liquidambar styraciflua</i>	<i>Syringa vulgaris</i> ( <i>Lilac</i> ).

\* Denotes Trees.

## RHODODENDRON SPECIES AND HYBRIDS

### EARLY FLOWERING

Plant	Height	Colour	Flowering
barbatum . . . . .	10-20 ft.	Blood-red . . . . .	February
<i>Christmas Cheer</i> . . . . .	3- 4 „	Pale Rose . . . . .	Jan.-March
dauricum . . . . .	Up to 3 „	Rosy-purple (fragrant)	Jan.-March
mucronulatum . . . . .	3- 6 „	Rosy-purple . . . . .	Jan. & Feb.
moupinense . . . . .	3- 4 „	White and Red . . . . .	Early Feb.
*Nobleanum . . . . .	6-12 „	Pink or Crimson . . . . .	Jan. or Feb.
<i>Rosa Mundi</i> . . . . .	3- 4 „	Pale Rose . . . . .	January
<i>Royal Lodge</i> . . . . .	5- 6 „	Carmine . . . . .	January
<i>Silberrad's Early Pink</i> . . . . .	5- 6 „	Pink-white . . . . .	January
parvifolium . . . . .	3- 4 „	Rosy-purple . . . . .	February
*præcox . . . . .	4- 6 „	Rosy-lilac . . . . .	Feb.-March

### EARLY SUMMER-FLOWERING

Plant	Height	Colour	Flowering
*Augustinii azureum . . . . .	5- 8 ft.	Blue . . . . .	April-June
campanulatum . . . . .	5-10 „	Rosy-mauve, rosy-purple	April
Fortunei, etc. . . . .	8-10 „	Pale Pinkish-white . . . . .	May
Griffithianum hybrids :			
<i>Isabella Mangles</i> . . . . .	8-1 „	Rose-pink . . . . .	May
Loderi . . . . .	10-12 „	Pale Pinkish-white . . . . .	May
<i>Pink Pearl</i> , etc. . . . .	8-10 „	Pink . . . . .	May
*hippophæoides . . . . .	3- 4 „	Blue . . . . .	April & May
neriiflorum . . . . .	4- 5 „	Scarlet-crimson . . . . .	April & May
orbiculare . . . . .	2- 3 „	Rose-pink . . . . .	April & May
rubiginosum . . . . .	6-15 „	Rose-lilac . . . . .	April & May
*vunnanense . . . . .	6-12 „	Flesh Pink . . . . .	May

\* Denotes Royal Horticultural Society's Award of Garden Merit.

### LATE-FLOWERING

Plant	Height	Colour	Flowering
auriculatum . . . . .	Up to 25 ft.	White . . . . .	August
discolor . . . . .	5-10 ft.	White . . . . .	June & July
Griersonianum . . . . .	4- 6 „	Scarlet . . . . .	June
macranthum . . . . .	5- 6 „	White . . . . .	July
poncticum . . . . .	10-15 „	Purple-mauve . . . . .	June-July

### ROCK GARDEN SPECIES

Plant	Height	Colour	Flowering
calostrotum . . . . .	Up to 1 ft.	Rose-purple . . . . .	May
fastigiatum . . . . .	1 „	Lavender-blue . . . . .	April
ferrugineum . . . . .	1-4 „	Reddish-pink or White . . . . .	June
hirsutum . . . . .	2½- 3 „	Rosy-pink . . . . .	June
impeditum . . . . .	½- 1 „	Mauve-purple-blue . . . . .	May
ledoides . . . . .	•Up to 2½ ft.	Rosy-white or Pale Rose . . . . .	May



## THE HEATH GARDEN

### ROCK GARDEN SPECIES [RHODODENDRONS] (continued)

Plant	Height	Colour	Flowering
racemosum . . . .	1- 4 ft.	Pinkish-white . . .	April-May
radicans . . . .	2 inches	Rosy-mauve . . .	April-May
repens . . . .	Upto $\frac{1}{2}$ ft.	Crimson . . . .	May
rupicola . . . .	1- 2 "	Plum-purple . . .	May
scintillans . . . .	Upto 2 "	Lavender-blue . . .	May
Williamsianum . . . .	1- 3 "	Rose-pink . . . .	May

## THE HEATH GARDEN

### SPRING AND EARLY SUMMER FLOWERS

Plant	Colour	Flowering	Height
*Erica arborea (Tree Heath) . .	White . . .	Feb.-May	10-15 ft.
" " alpina . . . .	White . . .	April-June	5-10 "
* " australis (Spanish Heath)	Rosy-red . . .	March-May	4- 6 "
* " " Mr. Robert . . .	White . . .	March-May	4- 6 "
" carnea . . . .	Carmine Crimson	Nov.-April	$\frac{1}{2}$ - 1 "
" " alba (syn. herbacea)	White . . .	Nov.-April	$\frac{1}{2}$ - $\frac{3}{4}$ "
* " darleyensis . . . .	Rosy-red . . .	Nov.-April	1-1 $\frac{1}{2}$ "
* " lusitanica (syn. E. codonodes)	White . . .	Jan.-April	6-10 "
* " mediterranea . . . .	Lilac-rose . . .	March-May	4- 8 "
* " " alba . . . .	White . . .	March-May	2-2 $\frac{1}{2}$ "
* " Veitchii . . . .	White . . .	Feb.-April	6-10 "

\* Denotes species not suitable for planting in exposed positions, except in the warmer districts of the south and west of England.

### SUMMER AND AUTUMN FLOWERS

Plant	Colour	Flowering	Height
Erica ciliaris (Dorset Heath) . .	Rosy-red . . .	June-Oct.	$\frac{1}{2}$ - 1 ft.
" cinerea (Grey Heath) . .	Rosy-red . . .	July-Sept.	$\frac{1}{2}$ - $\frac{3}{4}$ "
" " alba (Grey Heath)	White . . .	July-Sept.	$\frac{1}{2}$ - 1 "
" " pallida . . . .	Pale Pink . . .	July-Sept.	$\frac{3}{4}$ "
" Mackaili . . . .	Pale Rose . . .	June-Sept.	1 "
" multiflora . . . .	Rose-purple . . .	July-Oct.	1 "
" scoparia . . . .	Greenish-white	June-Sept.	2 "
" stricta (syn. ramulosa) . .	Pale Rose . . .	June-Sept.	6- 8 "
" Tetralix . . . .	Rosy-pink . . .	May & June	$\frac{1}{2}$ - $\frac{3}{4}$ "
" vagans & vars. (Cornish Heath)	Rose-purple, White or Red	July-Oct.	1-1 $\frac{1}{2}$ "

### WINTER FLOWERS

See Erica carnea, E. alba, E. darleyensis and E. lusitanica in Spring and Early Summer list above.

Associated with the Summer and Autumn Heaths, may be planted :

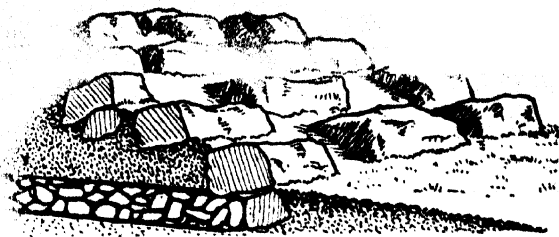
Calluna vulgaris vars. (Ling Heather)	White, Pink or Red	July-Oct.	9-24 in.
Daboecia (syn. Menziesia) polifolia vars. (Irish Heath)	White, Rosy-purple	June-Sept.	1-2 ft.

See also List of Plants for Peaty Soil, page 144, and Rhododendrons for the Rock Garden, page 101.

## HEDGING SHRUBS

Name	Common Name	Height in Ins. at which to Plant	Num- ber of Rows	Dis- tance in Inches between Plants	Dis- tance in Inches between Rows	When to Trim	Average Height in Feet or Form of Hedge and Time in Years to Make Good Hedge
Berberis (E)	Barberry	20	1 or 2	15	15	Shorten long shoots after flowering	5 ft.; 6 yrs.
Darwinii							
B. stenophylla (E)	Barberry	18-24	1 or 2	18-24	18	August or February	5 ft.; 5 yrs.
Cotoneaster (E)	Rockspray	18-24	1 or 2	18	18	August or February	5 ft.; 5 yrs.
Simonsii							
Cydonia (D)	Japanese Quince	18-24	1 or 2	18-24	18	Shorten after flowers	6 ft.; 6 yrs.
japonica							
Crataegus (D)	Hawthorn or May	12-20	2	6	15	April and August	6 ft.; 8 yrs.
oxyacantha							
Cupressus (E)	Cypress	12-24	1	20	—	April, trim with knife	7 ft.; 7 yrs.
Lawsoniana							
Cupressus (E)	Cypress	12-20	1	25	—	May and Aug., twice yearly	9 ft.; fast grower
macrocarpa							
Cytisus albus, &c. (D)	Broom	12	2	15	20	June	6 ft.; 5 yrs.
Euonymus (E)	Japanese Spindle Tree	12-18	1	24	—	Trim with knife April and August	6 ft.; 6 yrs.
japonicus							
Fagus sylvatica (D)	Beech	18-30	2	10	20	August	Tall; 6 yrs.
Forsythia (D)	Golden Bell	12-18	1	12-18	—	Cut well back in May	8 ft.; 6 yrs.
intermedia vars.							
Fuchsia (D)	Fuchsia	12-18	1	12	—	February or March	5 ft.; 6 yrs.
Riccartonii							
Ilex Aquifolium (E)	Holly	15	1 or 2	12	12	May and August	Thick Hedge. Slow grower first 3-4 yrs.
Lavandula spica (E)	Lavender	12	1	12	—	After flowers	2-3 ft.; 5 yrs.
Ligustrum (E)	Privet (Oval-leaved)	20	2	10	15	Whenever straggly	Screen. Fast grower
ovalifolium							
Ligustrum o. (E)	Privet (Golden)	20	2	10	15	April and August	4 ft. Fast grower
foliis aureis							
Lonicera (D)	Honeysuckle	18	1	12	—	April, shorten long growths	4 ft.; 5 yrs.
fragrantissima							
Lonicera nitida (E)	ditto.	12-18	1	12-18	—	June-August	5 ft.; 5 yrs.
Olearia Haastii (E)	N. Zealand Daisy Bush	12-18	1	12-15	—	Trim straggly shoots	4 ft.; 5 yrs.
Osmanthus (E)		9-12	1	18-24	—	August	8 ft.; 5 yrs.
ilicifolia							
Prunus (E)	Laurel	20	1	24	—	May and Sept.,	6 ft.; 5 yrs.
Laurocerasus							
var. pyramidalis							
Prunus (D)	Cherry Plum	20-40	2	9	15	June	Boundary; 6 yrs.
cerasifera							
Ribes sanguinea (D)	Flowering Currant	18-24	1	18	—	Shorten after flowers	5 ft.; 4 yrs.
Rosa rubiginosa (D)	Sweet Briar	30	1	24	—	March and August	6 ft.; 4 yrs.
& Penzance Briars							
Tamarix gallica (D)	Tamarisk	24	2	12-15	18	February	6 ft.; 5 yrs.
Taxus baccata (E)	Yew	30-60	1	24	—	May and August	5-10 ft.; slow-growing
Thuya plicata (E)	Thuya	30	1	18-20	—	April to September	As back-ground; fast
(syn. gigantea)							
T. occidentalis (E)	Thuya	24	1	18-20	—	April to Sept.	do.; 5 yrs.

NOTE.—D—Deciduous ; E—Evergreen.



In constructing the rock garden, the rocks should be set at a uniform angle to simulate the strata of a natural outcrop of rock; they should tilt slightly backwards and the higher rocks must not overhang those below them, or no moisture will find its way into the horizontal fissures. The brick or rubble drainage is clearly shown.

### THE ROCK GARDEN

The idea that rock plants grow best in practically nothing but rock is a mistaken one; a generous allowance of good soil between, amongst, and beneath the stones is essential, and as the function of the rocks is to provide shelter and preserve moisture for the roots, it is clearly useless to set slabs of stone perpendicularly in the soil. Large masses of stone, two or more feet in length, should be used, where possible, and should be sunk firmly in the earth in a slightly slanting direction—tilted backwards, so that the rain may trickle down to the roots of the plants. The stones should all slant in the same direction to represent a natural outcrop or stratum of rock, and the slopes of the mounds in which the boulders are set must not be too steep, and should be as natural as possible. The pockets in which the alpinists are to be planted should be irregular in shape and may vary from a few inches in diameter to as many feet across; they must be from a foot to 18 inches in depth, and so constructed that the soil will not wash out of them. If there is any chance of the soil in the pockets becoming sodden, clinker and rubble drainage must be provided.

**Situation.**—It is important that the rock garden should have an open, sunny position, away from walls and trees, and a wild and “natural-looking” site, and, where possible, one where the natural rock of the district crops up here and there, is the most favourable. The stone of the district should always be used if it can, but any stone will do, except, perhaps, the very crumbling slates or magnesium limestone. Two of the best are weathered limestone and sandstone.

## THE ROCK GARDEN

**Rock Garden Stones.**—Limestone—Waterworn, deep grey. Used for bold effects. Limestone—Grey, weathered. Used for smaller schemes. Light-Brown Sandstone—In slab-shaped rocks. Best for peat-loving plants.

**Walling Stones.**—York—Greyish-brown. Used for formal cemented walls. One ton builds approximately 4 square yards of wall. Sandstone—Hard, light brown. Used for "dry" wall, 2 inches to 4 inches thick.

**Retaining Walls.**—Thickness approximately one-third the vertical height. One weep-hole required to every superficial yard of wall. Wall, unless tied in with mortar, should be at a tilt backwards of not less than  $1\frac{1}{2}$  inches in 1 foot. •

**Soil.**—An excellent soil for most rock plants is full of coarse sand or grit, leaf-mould and other decayed vegetable matter, mixed in some cases with old spent manure from a hot-bed.

Alpine plants in their native habitat receive a yearly top-dressing of vegetable matter from the material carried down by the melting snows, and a top-dressing of leaf-mould should be annually applied in imitation of this natural process. To keep the soil cool and moist until the plants are large enough to cover it with their own foliage, sprinkle the intermediate surface of soil with chips of stone, small enough to be easily pushed aside by a shoot.

**Selection of Plants.**—Great pains should be taken to ensure having a succession of bloom over the longest possible period of the year. In this connection some of the smaller growing bulbs which bloom in the winter and early spring are invaluable.

**Planting.**—When planting in a crevice, it is essential that there shall be no air pocket at the bottom; to avoid this, first ram plenty of good gritty soil right to the bottom of the crevice, then scrape out some of the mould at the top and set the plant in firmly, pressing the soil well down round the roots, and fix it in tightly by means of a smaller wedge of stone. Rock plants should be planted in the spring or better still, in the early autumn.

**Propagation.**—Most rock plants may be increased by seed under glass in March or, better still, by means of cuttings or division in April or September.

## THE ROCK GARDEN

### SOME PLANTS FOR THE ROCK GARDEN

#### ANNUALS

Abronia umbellata var. grandiflora <i>Lilac Queen and Violet Queen</i>	Leptosiphon hybridus
Alyssum maritimum	Limnanthes Douglasii
Anagallis linifolia & A. lactiflora	Linaria reticulata
Arnebia cornuta	Lobelia campanulata [Stock]
Bartonia	Malcomia maritima (Virginian)
Calandrinia [folia]	Mesembryanthemum criniflorum
Calceolaria mexicana & C. scabiosa-	Nolana atriplicifolia
Calliopsis	† Phacelia campanularia
Campanula Loreyi	Platystemon californicus
Chamaejasme heterophylla	Portulaca
Cynoglossum	Sanvitalia procumbens
Doronicum elegans and D. pulchella	Saponaria calabrica
Eschscholtzia cespitosa	Saponaria ocymoides
Felicia Bergeriana and F. tenella	Schizopetalon Walkeri
Godetia	Sedum caruleum
Gypsophila elegans	Silene pendula
Ionopsidium acaule	Specularia perfoliata
Legousia speculum veneris	Tropaeolum (Nasturtium)
	Viscaria

#### PERENNIALS AND BIENNIALS

*Acæna glauca, etc.	†Geranium sanguineum lancas-
*Acantholimon venustum	trienae, etc.
Achillea argentea, etc.	Geum coccineum, etc.
*Adonis vernalis	Gypsophila repens
Æthionema	*Haberlea rhodopensis
Alyssum montanum	†Helianthemum hybrids
*Alyssum saxatile compactum	Heuchera sanguinea vars.
†*Anchusa myosotidiflora	†Hypericum fragile, †H. reptans, etc.
Androsace carnea, etc.	*Iberis (Candytuft)
*Anemone Hepatica, etc.	*Iris (Dwarf Bearded, Hybrid and
Antirrhinum (dwarf)	Bulbous)
Anthyllis montana	Linaria alpina
*Aquilegia glandulosa	Linum (Flax)
Arabis (various)	†Lithospermum prostratum
†*Arenaria montana, etc.	Lychnis alpina (Campion)
Armeria cespitosa	*Lysimachia nummularia aurea
*Asperula odorata, etc.	Matthiola (Stocks)
*Aster alpinus	Meconopsis (various)
†*Astilbe simplicifolia	*Mertensia primuloides
Aubrietia (various)	Morisia hypogæa
*Auricula (various) [ica, etc.]	*Myosotis (Forget-me-not)
*Campanula carpatica, †C. gargan-	Nepeta Mussinii
*Cerastium tomentosum	Nierembergia rivularis
Ceratostigma plumbaginoides	†*Omphalodes cappadocica, O. verna,
Coronilla cappadocica	etc.
*Cyclamen (Hardy vars.)	Onosma taurica, etc.
Dianthus alpinus, etc.	*Ourisia coccinea
*Dodecatheon Hendersonii, etc.	Oxalis enneaphylla, etc.
Draba (various)	Papaver alpinum
Dryas octopetala	Phlox (Dwarf Alpine)
Erinus alpinus	*Polygonum vacciniifolium, etc.
Erodium (various)	Potentilla (various) [etc.]
Erysimum rupestre, etc.	*Primulas (Auriculas, Primrose,
*Gentiana (various)	†Pulmonaria azurea, etc.

\* Denotes subjects that will grow in the shade.

† Denotes Royal Horticultural Society's Award of Garden Merit.

## THE ROCK GARDEN

### PERENNIALS AND BIENNIALS FOR ROCK GARDEN (ctd.)

- |  |   |
|--|---|
| <p>*<i>Ramondia pyrenaica</i><br/>         *<i>Ranunculus alpestris</i><br/> <i>Saponaria ocymoides</i><br/>         †*<i>Saxifraga apiculata</i>, †<i>S. Cotyledon</i><br/>             <i>pyramidalis</i>, †<i>S. Elizabethæ</i>, etc.<br/> <i>Sedum</i> (various)<br/> <i>Sempervivum</i> (various)<br/> <i>Silene</i> (various)<br/>         *<i>Soldanella alpina</i>, etc.</p> | <p>*<i>Thymus</i> (Thyme)<br/>         †<i>Tropæolum polyphyllum</i>,<br/>             <i>Veronica</i><br/>         *<i>Viola</i> (various)<br/>             <i>Wahlenbergia serpyllifolia</i><br/>         *<i>Waldsteinia trifolia</i><br/>             <i>Wallflowers</i> (dwarf)<br/>             <i>Zauschneria californica splendens</i>.</p> |
|--|---|

### BULBS

- |   |  |
|---|--|
| <p><i>Allium Beesianum</i>, <i>A. Moly</i>,<br/>             <i>A. narcissiflorum</i>, etc.<br/>         †*<i>Anemones apennina</i>, †<i>A. blanda</i>,<br/>             etc.<br/> <i>Bulbocodium vernum</i><br/> <i>Calochortus Howellii</i>, etc.<br/> <i>Chionodoxa Luciliæ</i>, †<i>C. sardensis</i>,<br/>             etc.<br/> <i>Colchicum autumnale</i>, †<i>C. speciosum</i><br/>             <i>album</i><br/>         †<i>Crocus Imperati</i>, <i>C. speciosus</i>, etc.<br/> <i>Cyclamen coum</i>, <i>C. neapolitanum</i>,<br/>             etc.<br/> <i>Eranthis hyemalis</i>, †<i>E. Tubergenii</i></p> | <p>†<i>Erythronium californicum</i> (Dog's<br/>             Tooth Violet)<br/>         †<i>Fritillaria Meleagris</i><br/>         †<i>Iris reticulata</i>, etc.<br/>         †<i>Leucojum vernum carpathicum</i><br/>             <i>Muscari azureum</i> (Grape Hyacinth)<br/>             <i>Narcissus Bulbocodium</i>, †<i>N. cycla-</i><br/>             <i>mineus</i>, <i>N. triandrus</i>, etc.<br/>             <i>Puschkinia scilloides</i><br/>         †<i>Scilla bifolia</i>, <i>S. præcox</i>, †<i>S.</i><br/>             <i>sibirica</i>, <i>S. verna</i>, etc.<br/>             <i>Snowdrops</i> (<i>Galanthus</i>), †<i>G.</i><br/>             <i>Elwesii</i><br/>         †<i>Tulip Kauffmanniana</i>, etc.</p> |
|---|--|

### SHRUBS

#### Dwarf Deciduous Flowering and Foliage

- |  |  |
|--|--|
| <p>†<i>Berberis Thunbergia minor</i><br/> <i>Betula nana</i> and <i>B. pumila</i><br/> <i>Ceratostigma plumbaginoides</i><br/> <i>Cydonia Maulei</i><br/> <i>Cytisus</i> (Broom) <i>Ardoinii</i>, <i>Beanii</i>,<br/>             <i>decumbens</i>, <i>hirsutus</i>, †<i>purpureus</i>,<br/>             etc.<br/> <i>Daphne alpina</i>, <i>Mezereum album</i>,<br/>             etc.<br/> <i>Erinacea pungens</i><br/> <i>Fuchsias</i> [Hardy] (Cut down to<br/>             ground in early March)</p> | <p><i>Genista</i> (Broom) <i>dalmatica</i>, <i>horrida</i>,<br/>             †<i>pilosa nana</i>, <i>tinctoria</i>, etc.<br/> <i>Hypericum</i> (various)<br/> <i>Potentilla fruticosa nana parvifolia</i>,<br/>             and <i>fruticosa pyrenaica</i><br/> <i>Ribes aureum pumilum</i><br/> <i>Rosa</i> (see Dwarf Species Roses,<br/>             page 160)<br/> <i>Salix helvetica</i>, <i>herbacea</i>, <i>lanata</i>,<br/>             <i>repens argentea</i>, etc.<br/> <i>Spiræa bullata</i><br/> <i>Viburnum Opulus nanum</i>.</p> |
|--|--|

#### Dwarf Evergreen and Flowering Shrubs

- |  |  |
|--|--|
| <p><i>Berberis buxifolia nana</i>, †<i>Darwinii</i><br/>             var. <i>prostrata</i>, <i>stenophylla</i> var.<br/>             <i>gracilis nana</i><br/> <i>Bruckenthalia spiculifolia</i><br/> <i>Bryanthus erectus</i><br/> <i>Buxus sempervirens rosmarinifolia</i><br/> <i>Cistus</i> (Rock Rose) <i>Loretii</i>, <i>obtusifolius</i>, etc.<br/> <i>Daphne Blagayana</i>, †<i>cneorum</i>,<br/>             <i>petræa</i>, <i>retusa</i>, etc.</p> | <p><i>Helianthemum formosum</i>, f. <i>con-</i><br/>             color, <i>Libanotis</i>, <i>umbellata</i>, etc.<br/> <i>Hypericum olympicum</i>, <i>orientale</i>,<br/>             <i>rhodopæum</i>, etc.<br/> <i>Lavandula spica nana</i>, and <i>s.</i><br/>             <i>Munstead Dwarf</i><br/> <i>Lonicera pileata</i><br/> <i>Mahonia nervosa</i><br/> <i>Polygala Chamæbuxus</i> var. <i>pur-</i><br/>             <i>purea</i></p> |
|--|--|

\* Denotes subjects that will grow in the shade.

† Denotes Royal Horticultural Society's Award of Garden Merit.

## THE ROCK GARDEN

### Dwarf Evergreen and Flowering Shrubs (continued)

- |   |   |
|---|---|
| <i>Prunus Laurocerasus</i> Zabelliana         | <i>Senecio compactus</i> , Grayii, flaxi-   |
| <i>Rhodothamnus</i> Chamæcistus               | folius, Monroi                              |
| <i>Rhododendron calostrotum</i> , chry-       | <i>Teucrium</i> Marum                       |
| seum, ferrugineum, hirsutum,                  | <i>Veronica cupressoides</i> , elliptica    |
| intricatum, ledoides, orbiculare,             | "Autumn Glory," etc.                        |
| racemosum, radicans, repens,                  | <i>Vifca</i> minor                          |
| sanguineum, Williamsianum, etc.               | <i>Yucca angustifolia</i> , filamentosa and |
| <i>Ribes laurifolium</i>                      | flaccida.                                   |
| • <i>Santolina incana</i> , neapolitana, pin- |   |
| nata, etc.                                    |   |

### Dwarf Conifers

- |   |  |
|---|--|
| <i>Abies balsamea</i> hudsonica, A. nobilis       | <i>Juniperus sabina</i> tamariscifolia |
| var. glauca, A.n. var. prostrata, etc.            | <i>Picea Albertiana</i> conica         |
| <i>Cedrus Deodara</i> var. pendula, C.            | <i>Picea excelsa</i> Gregoryana, P. e. |
| Libani var. brevifolia                            | humilis, P. e. pumila, P. e.           |
| <i>Cephalotaxus drupacea</i> prostrata            | pygmæa, P. e. reflexa, etc.            |
| <i>Cryptomeria japonica</i> nana                  | <i>Pinus sylvestris</i> pumila         |
| <i>Cupressus Lawsoniana</i> minima, C.L.          | <i>Podocarpus alpina</i>               |
| nana, etc.  | <i>Pseudotsuga Douglasii</i> nana      |
| <i>Cupressus obtusa</i> (see <i>Retinospora</i> ) | <i>Retinospora obtusa</i> aurea, R. o. |
| <i>Cupressus nootkatensis</i> nidiformis          | nana, R. o. pygmæa, etc.               |
| <i>Cupressus pisifera</i> ericoides and C.p.      | <i>Taxus baccata</i> compacta, T. b.   |
| nana  | horizontalis, T. b. pygmæa, etc.       |
| <i>Cupressus thyoides</i> nana                    | <i>Thuja occidentalis</i> globosa, T.  |
| <i>Juniperus chinensis</i> globosa                | orientalis compacta, etc.              |
| <i>Juniperus communis</i> compressa, J.c.         | <i>Tsuga canadensis</i> nana.          |
| nana, and J. c. prostrata                         |  |

### Dwarf Heath-like Shrubs and Lime-haters

- |   |   |
|---|---|
| <i>Andromeda polifolia</i>                    | <i>Erica cinerea</i> and <i>E. ciliaris</i> vars. |
| <i>Bruckenthalia spiculifolia</i>             | * <i>Erica darleyensis</i>                        |
| <i>Calluna vulgaris</i> aurea, C. v. glauca,  | <i>Erica Tetralix</i> and <i>E. vagans</i> vars.  |
| etc.  | <i>Erinacea pungens</i>                           |
| <i>Cassiope tetragona</i>                     | <i>Gaultheria procumbens</i> and <i>G.</i>        |
| <i>Daboecia polifolia</i> vars.               | nummularioides                                    |
| <i>Daphne Blagayana</i> , <i>D. cneorum</i> , | <i>Kalmia angustifolia</i> nana                   |
| etc.  | <i>Ledum latifolium</i> and <i>L. palustre</i>    |
| <i>Empetrum nigrum</i>                        | <i>Vaccinium Vitis-idaea</i> .                    |

### Prostrate and Trailing Shrubs

- |  |   |
|--|---|
| <i>Artemisia lanata</i> pedimontana                | <i>Linnaea borealis</i>                                 |
| <i>Cotoneaster adpressa</i> , <i>C. congesta</i> , | <i>Mahonia repens</i>                                   |
| <i>C. thymifolia</i> , etc.                        | <i>Pachysandra terminalis</i>                           |
| <i>Dryas octopetala</i>                            | <i>Polygonum vacciniifolium</i>                         |
| <i>Helianthemum alpestre</i> , <i>H. appen-</i>    | <i>Salix arbuscula</i> , <i>S. herbacea</i> , <i>S.</i> |
| inum, <i>H. vulgare</i> vars., etc.                | retusa, etc.  |
| <i>Hypericum coris</i> , <i>H. empetriformis</i> , | <i>Spiraea decumbens</i> (syn. <i>procum-</i>           |
| <i>H. polyphyllum</i> , <i>H. reptans</i> , etc.   | bens)   |
| <i>Juniperus communis</i> nana                     | <i>Veronica Bidwillii</i> , <i>Catarractæ</i> dif-      |
| <i>Juniperus Sabina</i>                            | fusa, etc.  |

See also List of Plants for Covering the Ground, page 122.

\* Denotes the Royal Horticultural Society's Award of Garden Merit.

# CONTINUITY OF BLOOM IN THE ROCK GARDEN

## SPRING BLOOM

- |  |   |
|--|---|
| <p>Aconite, Winter. See <i>Eranthis</i><br/> <i>Adonis vernalis</i><br/> <i>Allium</i> (various)<br/> <i>Androsace yunnanensis</i><br/> <i>*Anemone apennina</i>, <i>*A. blanda</i>, <i>A. Hepatica</i>, etc.<br/> <i>*Arenaria montana</i><br/> <i>Asarum europæum</i><br/> <i>Aubrietia</i> (various)<br/> <i>Bulbocodium vernum</i><br/> <i>Cheiranthus alpinus compactus</i><br/> <i>Cheiranthus mutabilis</i> (Wallflowers)<br/> <i>*Chionodoxa sardensis</i>, etc.<br/> <i>*Crocus Imperati</i>, <i>C. Sieberi</i>, etc.<br/> <i>Cyclamen coum</i>, etc.<br/> <i>Draba</i> (various)<br/> <i>*Eranthis Tubergenii</i> (Winter Aconite)<br/> <i>*Erica carnea</i>, etc.</p> | <p><i>Erysimum rupestre</i><br/> Forget-me-not. See <i>Myosotis</i><br/> <i>Gentiana</i> (various)<br/> <i>Helianthemum</i><br/> <i>Iris</i> (bulbous)<br/> <i>Myosotis</i> (Forget-me-not)<br/> <i>*Narcissus cyclamineus</i>, etc.<br/> <i>Omphalodes verna</i><br/> <i>Phlox</i> (dwarf)<br/> <i>Primulas</i> (various)<br/> <i>Saponaria ocymoides</i><br/> <i>Saxifraga</i> (various)<br/> <i>*Scilla bifolia</i>, <i>*S. sibirica</i><br/> <i>Sparaxis</i><br/> Sun Rose. See <i>Helianthemum</i><br/> <i>Veronica teucrium</i><br/> <i>Viola gracilis</i>, etc.<br/> Wallflowers. See <i>Cheiranthus</i></p> |
|--|---|

## SUMMER BLOOM

- |  |  |
|--|--|
| <p><i>Acæna glauca</i>, etc.<br/> <i>Acantholimon venustum</i><br/> <i>Achillea argentea</i>, etc.<br/> <i>Aethionema</i> (various)<br/> <i>Alyssum montanum</i><br/> <i>*Anchusa myosotidiflora</i><br/> <i>Androsace carnea</i> (Rock Jasmine)<br/> <i>Anthyllis montana</i><br/> <i>Aquilegia glandulosa</i><br/> <i>Arenaria</i> (various)<br/> <i>Armeria cæspitosa</i><br/> <i>Arnebia</i>. See <i>Macrotomia</i><br/> <i>Aster alpinus</i><br/> <i>Calandrinia umbellata</i><br/> <i>Campanula carpatica nana</i>, etc.<br/> <i>Cerastium tomentosum</i><br/> <i>Ceratostigma plumbaginoides</i><br/> Columbine. See <i>Aquilegia</i><br/> <i>Dianthus</i> (Pinks)<br/> <i>Dryas octopetala</i><br/> Edelweiss. See <i>Leontopodium</i><br/> <i>Erodium</i> (Crane's Bill)<br/> <i>Euphorbia Myrsinites</i><br/> <i>Geraniums</i><br/> <i>Geum</i><br/> <i>Globularia trichosantha</i><br/> <i>Gypsophila repens</i><br/> <i>Helichrysum bellidioides</i><br/> <i>Heuchera sanguinea</i><br/> <i>*Hypericum fragile</i>, <i>*H. patulum</i><br/> <i>Forrestii</i>, etc.</p> | <p><i>Jankæa Heldreichii</i> (syn. <i>Ramondia Heldreichii</i>)<br/> <i>Leontopodium alpinum</i> (Edelweiss)<br/> <i>Linaria alpina</i><br/> <i>Linum</i> (Flax)<br/> <i>*Lithospermum prostratum</i><br/> <i>Macrotomia echioides</i> (syn. <i>Arnebia</i>)<br/> <i>Meconopsis</i> (various)<br/> <i>Nepeta Mussinii</i><br/> <i>*Omphalodes cappadocica</i><br/> <i>Origanum hybridum</i>, etc.<br/> <i>Ourisia coccinea</i><br/> <i>Oxalis enneaphylla</i><br/> <i>Papaver alpinum</i><br/> Pinks. See <i>Dianthus</i><br/> <i>Potentilla</i> (various)<br/> <i>Ramondia</i> (Pyrenean Primrose)<br/> <i>Ranunculus alpestris</i><br/> Rock Jasmine. See <i>Androsace</i><br/> <i>Saponaria ocymoides</i><br/> <i>Saxifraga</i> (various)<br/> <i>Scabiosa Pteroccephala</i><br/> <i>Sempervivum</i> (Houseleek)<br/> <i>Silene</i> (Catchfly)<br/> Sweet Alyssum. See <i>Alyssum</i><br/> <i>Thalictrum adiantifolium</i>, etc.<br/> <i>Veronica nitida</i><br/> <i>Viola</i> (various)<br/> <i>Vitadennia triloba</i><br/> <i>Wahlenbergia</i> (various)<br/> <i>Waldsteinia trifolia</i><br/> <i>Zauschneria californica splendens</i></p> |
|--|--|

\* Denotes the Royal Horticultural Society's Award of Garden Merit.



## THE ROCK GARDEN

### CONTINUITY OF BLOOM IN THE ROCK GARDEN (ctd.)

#### AUTUMN BLOOM

Campanula (some vars.)	*Lithospermum prostratum
Ceratostigma plumbaginoides	Nepeta Mussinii
*Crocus speciosus, etc.	Ourisia coccinea
Cyclamen alpinum	Oxalis enneaphylla, O. lobata, etc.
Erodium (Crane's Bill)	Polygonum vacciniifolium
Gaultheria nummularioides	Primulas (various)
Gentiana (various)	Scabiosa Pteroccephala
Geraniums (various)	Sedum (various)
Geum Heldreichii vars.	Sempervivum (Houseleek)
Gypsophila repens	Silene (Catchfly)
Helichrysum bellidioides	Thalictrum adiantifolium
*Hypericum reptans, etc.	Vittadenia triloba
Leontopodium alpinum	Violas (various)
Leucojum autumnale	Zauschneria californica splendens.

#### WINTER BLOOM

Colchicum libanoticum	Merendera bulbocodium
Colchicum Troodi	Merendera persica
Crocus (some vars.)	Narcissus serotinus
Cyclamen alpinum	Narcissus viridiflorus
Cyclamen cilicicum	Primula acaulis <i>helio lilac hybrid</i>
Helleborus niger	and <i>Icomb hybrid</i>
Iris alata	Vinca difformis
*Iris unguicularis	

#### PLANTS FOR THE MORaine

Achillea argentea	Leontopodium alpinum (Edelweiss)
Æthionema (various)	Lewisia (various)
Alyssum idæum	Linaria alpina
Androsace carnea, A. lanuginosa	Mertensia primuloides
Anemone apennina, A. blanda, etc.	Morisia hypogæa
Aquilegia pyrenaica	Myosotis (Forget-me-not)
Armeria cæspitosa	Omphalodes verna
Asperula suberosa	Papaver alpinum
Aster alpinus	Pinks. See Dianthus
Campanula (various)	Potentilla (various)
Candytuft. See Iberis	Primula (various)
Cyananthus lobatus	Ranunculus alpestris
Dianthus [various] (Pinks)	Saxifraga Burseriana vars., etc.
Draba (various)	Silene (various)
Erinus alpinus	Soldanella alpina
Erodium (Crane's Bill)	Thalictrum alpinum
Gentiana (various)	Tunica Saxifraga plena
Geranium (various)	Viola (various)
Geum Heldreichii	Wahlenbergia serpyllifolia, W.
Helichrysum bellidioides	Pumilio, etc.
Hypericum (various)	Waldsteinia trifolia.
Iberis (Candytuft)	

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## SOME HARDY FERNS

Hardy ferns thrive in sheltered and shady positions in moist but well-drained deep loam with plenty of leaf-mould, peat and coarse sand in it. Half-hardy kinds require slight artificial heat in winter. Propagate, preferably in March or July, by means of "spores" sown under glass in the same manner as seed. Increase also by division in March. Pot-up in spring in a compost of two parts fibrous loam and one part well-sieved manure, leaf-mould and coarse sand. Keep moist and syringe.

*Adiantum pedatum*—D.

*Allosorus crispus* (*see* *Cryptogramma crispa*)

*Aspidium acrostichoides* (*see* *Polystichum acrostichoides*)

*Asplenium Adiantum-nigrum* (Black-Maidenhair Spleenwort)—E.

*Asplenium septentrionale* (Forked Spleenwort)—E.

*Asplenium Trichomanes* (Maidenhair Spleenwort)—E.

*Athyrium Filix femina* (Lady Fern)

*Athyrium Filix femina* vars. *cristatum*, *depauperatum*, *multifurcatum*, *plumosum elegans*—D.

*Blechnum penna marina* (Alpine Hard Fern)

*Blechnum spicant* (Hard Fern)

Buckler Fern. *See* *Dryopteris*

*Cryptogramma crispa* (Mountain Parsley Fern)—E.

*Cystopteris alpina* (Alpine Bladder Fern)—D.

*Cystopteris bulbifera*, *C. fragilis*, *C. montana* (Mountain Bladder Fern)—D

*Dryopteris æmula* (Hay-scented Fern)—E.

*Dryopteris Filix-mas* (Common Male Fern)—D.

*Dryopteris oreopteris* (Mountain Buckler Fern)

*Dryopteris oreopteris* vars. *cristata*, *gracilis*, *ramo-coronans*—E.

*Dryopteris Phegopteris* (Beech Fern)—D.

*Dryopteris rigida* (Rigid Buckler Fern)—D.

*Dryopteris spinulosa* (Prickly Buckler Fern)—E.

Hard Fern. *See* *Blechnum*

Hart's Tongue Fern. *See* *Phyllitis*

*Hymenophyllum tunbridgense* (Filmy Fern)

Lady Fern. *See* *Athyrium*.

*Matleuccia Struthiopteris* (Ostrich Fern)—D.

*Nephrodium*, *see* *Dryopteris*

*Onoclea sensibilis* (Sensitive Fern)—D.

*Ophioglossum vulgatum* (Adder's Tongue Fern)—D.

*Osmunda cinnamomea* (Cinnamon Fern)—D.

*Osmunda regalis* (Royal Fern) vars. *cristata*, *gracilis* and *palustris*—D.

*Phyllitis Scolopendrium* (Hart's Tongue) many varieties

*Polypodium vulgare* (Common Polypody)

*Polypodium vulgare* var. *cambricum* (Welch Polypody)

*Polypodium vulgare* var. *cornubiense* (Cornish Polypody)

Polypody. *See* *Polypodium*

*Polystichum acrostichoides* (Christmas Fern)—D.

*Polystichum aculeatum* (Hard Shield Fern)—E.

Spleenwort. *See* *Asplenium*

*Woodsia alpina*—D.

*Woodsia ilvensis*—D.

NOTE.—D denotes deciduous; E evergreen.

## SOME PLANTS FOR THE PAVED GARDEN

Name	Colour	Height in Inches	Flowering
* <i>Acæna Buchananii</i> . . .	Yellow-red . . .	3	June-July
<i>Acæna microphylla</i> . . .	Red . . .	3	June-July
<i>Acæna pulchella</i> . . .	Grey Leaves . . .	3	June-July
<i>Acantholimon glumaceum</i>	Pale Pink . . .	5	July-August
<i>Achillea rupestris</i> . . .	White . . .	3-4	May-August
<i>Achillea tomentosa</i> . . .	Yellow . . .	6-8	June and July
<i>Alyssum montanum</i> . . .	Yellow . . .	3	May and June
<i>Antennaria dioica</i> and var. tomentosa	Silvery Leaves . . .	3	June and July
<i>Arabis lucida</i> var. variegata	Golden Leaves . . .	3	May-July
* <i>Arenaria balearica</i> . . .	White . . .	3	May-June
<i>Armeria maritima</i> . . .	Red, Rose, Lilac, White	6-10	June-July
<i>Aubrietia</i> (Rock Cress) .	Purple and Red . .	3	May-September
<i>Bellium minus</i> . . .	Whitish and Purple	3	May-September
<i>Calamintha alpina</i> . . .	Violet . . .	4	June-August
<i>Campanula cæspitosa</i> . . .	Blue . . .	5	June and July
<i>Campanula muralis</i> , etc.	Purple-blue . . .	4	June-August
<i>Cerastium tomentosum</i> . .	White, Silver Leaves	5	June-August
* <i>Corydalis lutea</i> . . .	Yellow . . .	5	June-September
<i>Cotula dioica</i> . . .	Yellow . . .	3	June-July
<i>Dianthus deltoides</i> . . .	White or Red . . .	6-8	June
<i>Dryas octopetala</i> . . .	White . . .	3	June and July
* <i>Erinus alpinus</i> and <i>alba</i> .	Lilac-rose and White	4	May-July
<i>Erodium chamædryoides</i> .	White, veined Pink	3	May-September
<i>Frankenia laevis</i> . . .	Flesh . . .	3	June-August
<i>Globularia cordifolia</i> . .	Blue . . .	4-6	June-July
<i>Gypsophila cerastioides</i> .	White . . .	3	June-September
<i>Helianthemum croceum</i> . .	Yellow . . .	5	May-September
<i>Hutchinsia alpina</i> . . .	White . . .	6	June-August
† <i>Hypericum reptans</i> , etc.	Yellow . . .	4	June-September
<i>Leontopodium alpinum</i> . .	Creamy-white . . .	5	June-September
* <i>Linaria cymbalaria pallida</i>	Purple . . .	3	May-September
† <i>Lithospermum prostratum</i>	Gentian Blue . . .	5	June-July
* <i>Mazus Pumilio</i> . . .	Purple . . .	3	June-August
* <i>Mimulus radicans</i> . . .	Violet and White .	3	June and July
<i>Morisia hypogæa</i> . . .	Golden . . .	3	April and May
<i>Myosotis cæspitosa</i> (Forget- me-not)	Blue . . .	2	April and May
<i>Oenothera rosea</i> . . .	Pink . . .	5	June-September
<i>Oxalis acetosella rosea</i> . .	Purple Leaves . . .	4	June-July
<i>Paronychia argentea</i> . . .	Silver Leaves . . .	3	June-July
<i>Potentilla nitida</i> and <i>alba</i>	Pink and White . .	3	June-August
<i>Saxifraga Clibranii</i> . . .	Crimson . . .	5	May-June
<i>Saxifraga muscoides atro-</i> <i>purpureum</i> , etc.	Red . . .	4	May-June
<i>Sedum anglicum</i> , etc. . .	Pink and White. . .	4	June-August
<i>Sempervivum montanum</i>	Rosy-red . . .	4	July
<i>Silene acaulis</i> . . .	Pink . . .	2	June-August
<i>Thymus Serpyllum</i> vars. . .	White, Red . . .	3-6	June-August
<i>Veronica alpina</i> , <i>V. rupestris</i> , <i>V. saxatilis</i> , etc.	Blue . . .	3	June-August
* <i>V. cornuta</i> . . .	Purple, White, Yellow	6	May and June

\* Denotes subjects that will grow in the shade.

† The Royal Horticultural Society's Award of Garden Merit.





[C. W. Teager.  
DIMORPHOTHECA (CAPE DAISY OR STAR OF THE VELDT).

## SOME PLANTS FOR THE "DRY" WALL

Name	Colour	Height in inches	Flowering
* <i>Acæna Buchananii</i> , etc. . .	Blue-grey Leaves . .	Trailer	Summer
<i>Acantholimon venustum</i> , etc.	Rosy-pink . . . .	5-6	Summer
<i>Achillea tomentosum</i> , etc..	Yellow . . . . .	6-8	June-August
<i>Æthionema grandiflorum</i> . .	Rose . . . . .	9	May-July
<i>Alyssum montanum</i> , A. saxatile, etc.	Yellow . . . . .	3-6	May-June
<i>Androsace</i> (various) . . .	White, Pink . . . .	3-6	Summer
<i>Antirrhinum</i> (various) . . .	Various . . . . .	Various	Summer
<i>Aquilegia</i> (various) . . . .	Various . . . . .	12-18	Summer
<i>Arabis albida</i> & <i>androsacea</i>	White, Rose . . . .	Trailer	Spring
* <i>Arenaria balearica</i> . . . .	White . . . . .	Creeper	May and June
<i>Asperula Gussonii</i> . . . . .	Rose . . . . .	4	May-August
<i>Aubrietia</i> (various) . . . .	Various . . . . .	Trailer	April-June
<i>Campanula cæspitosa</i> . . . .	Blue . . . . .	5	June and July
<i>Campanula carpatica</i> , etc.	Purple, Blue or White	6-12	May-September
<i>Cerastium tomentosum</i> , etc.	White, Silver Leaves	6	June-August
<i>Cheiranthus</i> (various) . . . .	Various . . . . .	Various	April-June
<i>Cortusa Matthioli</i> . . . . .	Purple . . . . .	10	June
* <i>Corydalis lutea</i> . . . . .	Yellow . . . . .	6	June-September
* <i>Cotyledon Umbilicus</i> . . . .	Yellow . . . . .	6	June
* <i>Dianthus alpinus</i> , D. deltoideus, D. Knappii, etc.	Red or White, Yellow	6-12	Summer
<i>Draba aizoon</i> . . . . .	Yellow . . . . .	3	March and April
<i>Dryas octopetala</i> . . . . .	White . . . . .	Creeper	Summer
<i>Erigeron mucronatus</i> . . . .	Red and White . . .	6	Summer
* <i>Erinus alpinus</i> . . . . .	Purple, Pink, White	4	May-July
<i>Erodium macradenum</i> . . . .	Pale Violet . . . .	6	June and July
<i>Erodium romanum</i> , etc. . . .	Purple . . . . .	5	April and May
<i>Gypsophila repens</i> , etc. . . .	Pink and White . . .	4-6	May-September
<i>Helianthemum</i> (various) . . .	Various . . . . .	6	May-September
<i>Helichrysum bellidioides</i> . .	White . . . . .	4	July-October
<i>Hypericum tomentosum</i> , etc.	Yellow . . . . .	6-9	August-October
<i>Iberis sempervirens</i> . . . . .	White . . . . .	6	May and June
<i>Kentranthus ruber</i> . . . . .	White and Red . . .	24	Summer
<i>Leontopodium alpinum</i> . . . .	Creamy-white . . . .	6	June-September
* <i>Linaria alpina</i> , etc. . . . .	Violet . . . . .	3	Summer
<i>Linum alpinum</i> . . . . .	Blue . . . . .	5	May and June
<i>Lychnis alpina</i> . . . . .	Rose . . . . .	6	April-June
* <i>Mertensia primuloides</i> . . . .	Blue, Yellow Centre	6	May-August
<i>Morisia hypogæa</i> . . . . .	Golden-yellow . . .	3	April and May
<i>Nepeta Mussinii</i> . . . . .	Lavender-blue . . .	12	May-October
<i>Oenothera missouriensis</i> . . .	Yellow . . . . .	12	Summer
<i>Onosma albo roseum</i> . . . . .	White and Pink . . .	6	Summer
<i>Origanum hybridum</i> , etc. . . .	Rosy-pink . . . . .	8	June-July
<i>Phlox subulata</i> , etc. . . . .	Pink . . . . .	4	Early Summer
* <i>Primula Allionii</i> . . . . .	Pale Pink, White Eye	5	April
<i>Primula Auricula</i> , P. Clausiana, P. viscosa	Golden, Violet-red, Purple	2-9	March-June
* <i>Ramondia pyrenaica</i> . . . . .	Purple . . . . .	6	May-August
<i>Saponaria cæspitosa</i> . . . . .	Rosy-pink . . . . .	3	Summer
<i>Saxifraga</i> (various) . . . . .	Various . . . . .	Various	June-July
<i>Sedum</i> (various) . . . . .	Yellow, White, Pink	6	Summer
<i>Sempervivum</i> (various) . . . .	Red, Yellow, Pink . .	5-10	Summer
<i>Wahlenbergia serpyllifolia</i> . .	Violet-blue . . . .	Trailer	May and June
Wallflowers, <i>see</i> <i>Cheiranthus</i>			
<i>Zauschneria californica</i> . . . .	Vermilion . . . . .	12-18	July-September

\* Denotes subjects that will grow in the shade.

# THE WATER GARDEN

## PLANTS FOR THE POND SIDE AND MARSH GARDEN

• See also Some Plants for a Moist Soil, page 136.

Name	Colour	Height in inches	Flowering
Acorus calamus (Sweet Flag)	Yellow . . . . .	30	July and August
Anagallis (Bog Pimpernel)	Pink . . . . .	3-4	July
Arundinaria (Bamboo)	Several Varieties . .	24-200	—
• Arundo Donax (Great Reed)	Bluish-green Foliage	100	—
Astilbe (various) . . . .	White, Yellow, Rose, Crimson or Purple	25-50	May-September
Bambusa Fortunei aurea .	Golden, Variegated Leaves	20-30	—
†Caltha palustris fl. pl. (Marsh Marigold)	Rich Yellow (Double)	12	May-July
Caltha polypetala (Giant Kingcup)	Golden-yellow . .	20	May-July
Cardamine pratensis fl. pl.	Lilac . . . . .	12	May-July
Cortaderia (Pampas Grass)	Cream or Pink	72	Autumn
Cypripedium spectabile .	Pink and White .	20	June and July
Dodecatheon meadia . .	Purple, Rose and White	12	May and June
• Epilobium (Willow Herb) .	Crimson, Rose or White	6-70	June-September
Fritillaria Meleagris . .	Purple-rose & White	10	April
Funkia, see Hosta			
Gentiana Pneumonanthe .	Dark Blue . . . .	6-10	June-August
Geum rivale . . . . .	Crimson, Pink . .	10	May-September
Gunnera scabra, etc. . .	Foliage Plant, Small Reddish Flowers	60	August
Helonias bullata . . . .	Crimson-purple	15	April-May
Hemerocallis fulva, etc. .	Yellow & Apricot- orange	36	June-August
*Hosta (Funkia) . . . .	Ornamental Foliage and Lilac Flowers	18-24	July-September
Iris aurea, I. cuprea, I. Delavayi, etc.	Yellow, Red-bronze, Violet	20-48	June-July
Iris Japanese . . . . .	Various . . . . .	18-30	July-September
Iris sibirica, etc. . . .	Blue, White, Yellow	30-40	June
*Leucojum æstivum . . .	White with Green Spots	15	May
Lilium Martagon, etc. . .	Purple and Black .	30	July
Lilium pardalinum	Orange Crimson .	70	July
*Linnæa borealis . . . .	White and Pink .	3	June and July
Lysimachia ciliata and clethroides	Yellow, White . .	30	July and August
Lysimachia Nummularia aurea	Golden Leaves, Yel- low Flowers	4	June-September
Lythrum Salicaria superbum	Purple . . . . .	40	July-September
*Mimulus cardinalis, etc. .	Scarlet . . . . .	24	June and July
Orchis foliosa . . . . .	Purple . . . . .	10-20	May-June
Parnassia palustris . . .	White . . . . .	5-10	May-August
Phlox paniculata . . . .	Various . . . . .	40	July-October
Phormium tenax . . . . .	Greenish-white . .	60	July-September
*Pinguicula vulgaris . . .	Purple-violet . .	4-6	April and May
Podophyllum Emodii, etc.	White . . . . .	12	May
Polygonatum multiflorum	White . . . . .	30	May and June

\*Denotes subjects that will grow in the shade; † Award of Garden Merit,  
Royal Horticultural Society.

## THE WATER GARDEN

### PLANTS FOR THE POND SIDE AND MARSH GARDEN (ctd.)

Name	Colour	Height in inches	• Flowering
* <i>Primula Beesiana</i> , † <i>P. Bulleyana</i> , † <i>P. japonica</i> , <i>P. Juliae</i> , † <i>P. rosea</i> , etc.	Various . . . .	4-20	March, April, and May
<i>Ranunculus aconitifolius</i> . . .	White . . . .	24-30	May-June
<i>Saxifraga Hirculus</i> . . .	Yellow . . . .	5	July-September
<i>Scirpus lacustris</i> (Great Bulrush)	Brown . . . .	36	Summer
* <i>Spiraea Aruncus</i> . . .	White . . . .	40-50	June and July
<i>Spiraea palmata</i> . . .	Rose-crimson and White	24-48	July and August
<i>Thalictrum</i> (various) . .	Purple, Yellow and White	6-60	June-September
<i>Trollius</i> (Globe Flower) .	Yellow . . . .	10-40	May-July
<i>Typha latifolia</i> , etc. (Reed Mace)	Brown . . . .	70	Late Summer
<i>Vinca major</i> and minor .	Blue-purple . .	20 & 9	June-September

\* Denotes subjects that will grow in the shade ; † Award of Garden Merit, Royal Horticultural Society.

### PLANTS FOR THE WATER GARDEN

#### SHALLOW WATER (6-15 Inches Deep)

Name	Common Name	Colour	Flowering
<i>Alisma plantago</i> . . .	Water Plantain	Rosy-white . .	June-August
* <i>Aponogeton distachyum</i>	Cape Water Hawthorn	White . . . .	May-October
<i>Butomus umbellatus</i> . .	Flowering Rush	Pink . . . .	June-August
† <i>Calla palustris</i> . . .	Bog Arum . .	White . . . .	June-August
<i>Cyperus longus</i> . . .	Galingale . .	Brown . . . .	August
* <i>Hottonia palustris</i> . .	Water Violet .	Lilac with Yellow	May and June
<i>Menyanthes trifoliata</i> .	Bog Bean . .	White and Pink	March-June
<i>Myosotis palustris</i> semperflorens	Forget-me-not	Blue, Yellow Throat	May-August
<i>Nuphar advena</i> and <i>luteum</i>	Yellow Water Lilies	Yellow . . . .	June-August
<i>Nymphaea alba</i> , <i>plenisima</i>	White Water Lily	White (Double)	June-August
† <i>Nymphaea James Bryden</i> , etc.	Water Lilies .	See separate list	June-August
<i>Peltandra virginica</i> . .	Water or Arrow Arum	White . . . .	July
<i>Pontederia cordata</i> . .	Water Plantain	Blue (In Fine Tufts)	June-October
<i>Ranunculus aquatilis</i>	Crowfoot . .	White . . . .	May and June
<i>Ranunculus lingua</i> major	Giant Golden Spearwort	Yellow . . . .	June-August
<i>Sagittaria japonica</i> . .	Snowy-flowered Arrowhead	White . . . .	June and July
<i>Sagittaria sagittifolia</i>	Arrowhead . .	White, dashed with Pink	June-August
<i>Stratiotes aloides</i> . .	Water Soldier .	White . . . .	June
<i>Typha latifolia</i> . . .	Giant Reed Mace	Brownish-black	Late Summer

\* Also suitable for planting in fairly deep water (30-40 inches).

† Royal Horticultural Society's Award of Garden Merit.



## THE WATER GARDEN

### WATER LILIES

<i>Nuphar advena</i> (Yellow Water Lily)	Yellow, Red Anthers
<i>Nuphar luteum</i>	Yellow
<i>Nymphæa alba plenissima</i> (White Water Lily)	White
<i>Nymphæa atropurpurea</i>	Crimson-purple
<i>Nymphæa aurora</i>	Orange-red
<i>Nymphæa Conqueror</i>	Bright Red
<i>Nymphæa Ellisiana</i>	Rose
<i>Nymphæa Escarboucle</i>	Vermilion
<i>Nymphæa formosa</i>	Pale Pink Dark Centre
<i>Nymphæa Frœbelli</i>	Crimson
<i>Nymphæa Gladstoniana</i>	White, shaded Green
<i>Nymphæa gloriosa</i>	Red
<i>Nymphæa James Brydon</i>	Rosy Crimson
<i>Nymphæa James Falconer</i>	Crimson
<i>Nymphæa Laydekeri fulgens</i>	Crimson
<i>Nymphæa Laydekeri purpurea</i>	Purple, Crimson Centre
<i>Nymphæa Luciana</i>	Bright Rose
<i>Nymphæa lucida</i>	Crimson
<i>Nymphæa Marliacea vars.</i>	Various
<i>Nymphæa Meteor</i>	Crimson, streaked White
<i>Nymphæa Moorei</i>	Yellow
<i>Nymphæa Mrs. Richmond</i>	Pale Pink
<i>Nymphæa Newton</i>	Rosy Vermilion
<i>Nymphæa odorata exquisita</i>	Rose Pink
<i>Nymphæa odorata minor</i>	White
<i>Nymphæa sanguinea</i>	Deep Crimson
<i>Nymphæa tetragona Helvola</i>	Sulphur-yellow
<i>Nymphæa tuberosa</i>	White
<i>Nymphæa tuberosa Richardsons.</i>	White (Double)
<i>Nymphæa tuberosa rosea</i>	Rose
<i>Nymphæa William Falconer</i>	Crimson.

The smaller species such as *Nymphæa minor* and *N. tetragona* are useful for growing in Tubs.

Plant between April and June in weighted openwork baskets packed with fibrous loam, leaf-mould and cow dung and sink 10-inches deep in a layer of rich mud and from one to two feet under water; except those marked \*, which may be planted as deep as three feet under water.

† Denotes the Royal Horticultural Society's Award of Garden Merit.

### DESTRUCTION OF BLANKET WEED ON PONDS

An objectionable slimy green growth called Blanket Weed is apt to cover the surface of the water in hot, dry weather, usually in spring and summer. It may be disposed of by adding 2 oz. of copper sulphate or  $\frac{1}{2}$  oz. of potassium permanganate to each 12,500 gallons of water contained in the pond. The chemical should be placed in a small canvas bag and drawn through the water until dissolved and well mixed with the water. A second application should be made in a week's time, should the first be unsuccessful. This will harm neither plants nor fish.

# THE WATER GARDEN

## TANKS AND PONDS

### MEASUREMENT OF THE CONTENTS OF TANKS AND PONDS OF ALL SHAPES.

Tanks are for the most part rectangular or circular in form. When a brick tank is made for the storage of rain water, the rectangular form will be chosen ; but when a tank or pond is made for the reception of water in the open air, the circular form is preferable.

*Rule 1.*—To determine the cubic contents of any rectangular tank or vessel ; first, reduce the length, depth and breadth to the same denomination, whether it be yards, feet or inches. Multiply them together, and the result will be the cubic content in the denomination chosen.

\*\*\* To find the cubic content in gallons reduce length, depth and breadth to inches ; multiply them together, and *divide* the result by 277, which will give the number of gallons very nearly, the number of cubic inches in an imperial gallon being 277.274. In a cubic foot there are nearly 6½ imperial gallons ; therefore, when the length, breadth and depth are in feet, multiply them together and then *multiply* the result thus obtained by 6½.

#### (1) APPROXIMATE NO. OF GALLONS CONTAINED IN RECTANGULAR TANKS FROM 54 CUBIC FEET TO 720 CUBIC FEET.

Length in ft. Breadth in ft.	Depth in Feet			Length in ft. Breadth in ft.	Depth in Feet			Length in ft. Breadth in ft.	Depth in Feet		
	3	4	5		3	4	5		3	4	5
6×3	336	448	560	9×4	672	896	1120	11×6	1233	1644	2055
6×4	447	596	745	9×5	840	1120	1400	11×7	1437	1916	2398
6×5	558	744	930	9×6	1108	1444	1680	11×8	1644	2192	2740
6×6	672	896	1120	9×7	1176	1568	1960	11×9	1848	2464	3080
7×4	552	696	870	9×8	1341	792	2240	11×10	2055	2740	3425
7×5	658	782	960	9×9	1512	2016	2520	11×11	2259	3012	3765
7×6	754	1132	1290	10×4	744	992	240	12×6	344	792	2240
7×7	903	1200	1505	10×5	930	240	1550	12×7	548	2064	2580
8×4	597	796	992	10×6	1126	488	860	12×8	788	2384	2910
8×5	744	992	1240	10×7	1305	740	2175	12×9	2016	2688	3360
8×6	894	1192	1490	10×8	1491	1984	2485	12×10	2232	2976	3720
8×7	1044	1392	1740	10×9	1677	2236	2795	12×11	2466	3688	4100
8×8	1194	1592	1990	10×10	1860	2480	3100	12×12	1688	3584	4460

*Rule 2.*—To find the cubic content of a circular tank or vessel with upright sides, multiply the square of the diameter by the depth, and the product by 7854.

\*\*\* To find the content in gallons proceed as directed in the case of rectangular.

#### (2) APPROXIMATE NO. OF GALLONS IN CIRCULAR TANKS AND PONDS FROM 4 FEET TO 12 FEET IN DIAMETER, AND FROM 3 FEET TO 10 FEET IN DEPTH.

Diam. in Feet	Depth in Feet								Diam. in Feet	Depth in Feet							
	3	4	5	6	7	8	9	10		3	4	5	6	7	8	9	10
3	132	176	220	264	308	352	396	440	8	932	244	155	866	2177	2488	2790	1110
4	234	312	390	468	546	624	702	780	9	184	480	97	2370	376	3970	355	1950
5	363	484	605	726	847	968	1089	1210	10	464	952	2440	2928	3416	3904	4392	4880
6	530	707	884	1061	1238	1415	1592	1769	11	776	1368	2960	3552	4144	4736	5328	5920
7	720	960	1200	1440	1680	1920	2160	2400	12	2112	2816	3520	4224	4928	5632	6336	7040

# WILD GARDEN

## ANNUALS

Asperula (Woodruff)  
Helianthus annuus (Sunflower)

**Impatiens Roylei (Balsam)**

## BIENNIALS

Aquilegia (Columbine) •  
Digitalis purpurea (Foxglove)  
Hesperis (Rocket)  
Lunaria annua (Honesty)

Myosotis (Forget-me-not)  
 Oenothera biennis var. grandiflora  
 Verbascum olympicum

## PERENNIALS

Achillea (various)  
 Aconitum Napellus  
 Aquilegia (Columbine)  
 Armeria maritima  
 Artemisia lactiflora  
 Arundinaria (Bamboo)  
 Astilbe Davidii (Spiræa)  
 Bocconia  
 Buphthalmum speciosum  
 Centaurea babylonica  
 Doronicum plantagineum and var.  
     excelsum  
 Epilobium angustifolium  
 Eranthis hyemalis  
 Eryngium bromeliaefolium and E.  
     pandanifolium  
 Galega officinalis and G. patula  
 Gentiana asclepiadea  
 Gunnera manicata  
 Helianthus (Sunflower)  
 Kniphofia (Red Hot Poker)

Lupinus polyphyllus  
Meconopsis cambrica, etc.  
\* Monarda didyma *Cambridge Scarlet*  
Pæonia officinalis, P. albiflora, and  
P. suffruticosa  
Phormium tenax  
Polygonatum multiflorum  
(Solomon's Seal)  
Polygonum campanulatum, etc.  
\* Primula vulgaris, P. japonica, etc.  
Rheum Alexandræ, R. officinalis,  
etc.  
Saxifraga peltata, etc.  
Senecio Clivorum  
Sibthorpia europæa  
Solidago (Golden Rod)  
Thalictrum aquilegifolium, etc.  
Valeriana officinalis  
Verbascum phlomoides, etc.  
Viola odorata (Violet)

## BULBS AND TUBERS

Aconite (*Eranthis hyemalis*)  
 \**Alstr meria aurantiaca*  
 \**Anemone apennina*, etc.  
*Crocus* (various)  
*Cyclamen* (various)  
*Fritillaria Imperialis* and \**F.*  
*Meleagris*  
*Galanthus* (Snowdrop)  
*Iris f tidissima* and *I. germanica*  
*Leucojum  stivum* and \**L. vernum*  
*carpathicum*

Lilium croceum, L. giganteum, \*L.  
Martagon, L. pyrenaicum, L.  
regale, etc.  
Lily-of-the-Valley (Convallaria  
majalis)  
Monsbrietia (various)  
Narcissus (various)  
Scilla nutans (Bluebell)  
Tulips (various)

## SHRUBS

Azara microphylla  
\*Camellia japonica (vars.)  
\*Clematis (various)  
Hedera Helix (Ivy)  
\*Hydrangea paniculata and var.  
grandiflora

Kalmia latifolia  
\*Rhododendron (various)  
\*Rosa Moyesii, R. rugosa, etc.  
Viburnum Opulus  
Vinca major and V. minor

\* Denotes plants of outstanding excellence for garden use thoroughly tried in the Royal Horticultural Society's Gardens at Wisley, and given Award of Garden Merit.

## SOME PLANTS THAT WILL GROW UNDER THE DRIP OF TREES

Ajuga (Bugle)—P.  
 Anemone appennina, A. blanda,  
     A. Hepatica, etc.—B.  
 Aстранtia (Masterwort)—P.  
 Cardamine pratensis—P.  
 Colchicum—B.  
 Corydalis (Fumitory)—A. and P.  
 Crocus (various)—B.  
 Cyclamen (Hardy)—B.  
 Daffodils—B.  
 Digitalis (Foxglove)—P.  
 Dodecatheon Media, etc.—P.  
 Epimedium (Barrenwort)—P.  
 Eranthis (Winter Aconite)—B.  
 Euphorbia palustris, etc.—P.  
 Ferns (various)  
 Funkia, see Hosta

Helleborus niger, etc.—P.  
 Hosta (Funkia)—P.  
 Leucojum—B.  
 Lysimachia Nummularia—P.  
 Meconopsis caribrica—P.  
 Mertensia sibirica—P.  
 Narcissus—B.  
 Petasites—P.  
 Polygonum (Solomon's Seal)—P.  
 Saxifraga cordifolia, S. umbrosa,  
     etc.—P.  
 Scilla (Bluebell)—B.  
 Sedum spurium—P.  
 Thalictrum—P.  
 Trillium grandiflorum—P.  
 Vinca (various)—P.  
 Waldsteinia trifolia, etc.—P.

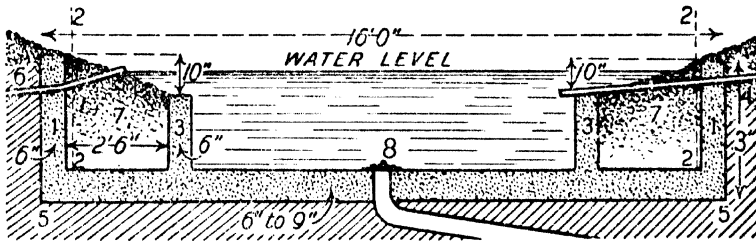
A.—Annual. B.—Bulb. P.—Perennial.

### SHRUBS

Aucuba japonica  
 Berberis Aquifolium  
     „ Darwinii  
     „ vulgaris  
 Buxus sempervirens  
 Cotoneaster (some vars.)  
 Danae Laurus  
 Daphne pontica  
 Euonymus japonicus  
     „ radicans  
 Gaultheria Shallon and G.  
     procumbens  
 Hedera Helix (Ivy)  
 Hypericum calycinum  
 Ilex Aquifolium  
 Ligustrum ovalifolium and L.  
     vulgare (Privet)

Mahonia Aquifolium  
 Phillyraea decora, P. latifolia and  
     P. media  
 Rhododendron *Cunningham's White*  
     R. ponticum, etc.  
 Ribes alpinum  
 Ruscus aculeatus (Butcher's Broom)  
     „ Hypoglossum  
 Sambucus nigra  
 Sarcococca humilis, S. ruscifolia and  
     S. Saligna  
 Skimmia japonica  
 Symphoricarpos racemosus  
 Taxus baccata (Yew)  
 Viburnum Tinus  
 Vinca major and V. minor (Peri-  
     winkle)

## HOW A POND IS CONSTRUCTED



1 and 1 are walls of concrete 6 inches thick ; 3 and 3 are also of concrete and of the same thickness, but are 10 inches shorter than the outer walls. 2 to 2 shows the overall width of the pond ; 7 and 7 are pockets of saturated soil for bog plants ; 4 is the inflow pipe, and 6 the overflow. The plug 8 enables the pond to be emptied and cleaned.

## CLIMBERS

The most valuable of our garden climbing plants are found among the shrubs and roses (*see* separate lists of *Climbing Shrubs for Walls, Roses, and Climbers for the Greenhouse*, pages 121, 159, 222, but the annuals and perennials also furnish us with a number of beautiful climbers, which by their rapid growth and easy cultivation are often of the greatest value.

### ANNUALS

Name	Colour	Height in feet	Flowering
* <i>Cobæa scandens</i> (Grown as Annual)	Purple and Greenish White	15-20	July-September
<i>Convolvulus tricolor</i> . .	White to Purple and Blue	8-9	June-October
* <i>Cucurbita</i> (Ornamental Gourd)	Insignificant . .	6-10	Summer
<i>Humulus japonicus</i> (Annual Hop)	—	10-20	Summer
* <i>Ipomœa coccinea</i> . . . .	Scarlet or Yellow .	8-10	June-September
<i>Ipomœa grandiflora alba</i> (Moon Flower)	White . . . . .	8-10	June-September
<i>Ipomœa purpurea</i> (Morning Glory)	Various (Single and Double)	8-10	June-September
<i>Lathyrus odoratus</i> (Sweet Pea)	Various . . . . .	3-6	Summer
* <i>Mina lobata</i> . . . . .	Red and Yellowish	8-10	June-September
* <i>Tropæolum aduncum</i> (Canary Creeper)	Yellow . . . . .	6-10	Summer
<i>Tropæolum majus</i> (Climbing Nasturtium)	Orange, Yellow, Red,	8-10	Summer

### PERENNIALS

Name	Colour	Height in feet	Flowering
* <i>Eccremocarpus scabra</i> (Treat as Annual)	Red or Orange-red	10-20	July-September
<i>Humulus Lupulus aureus</i> (Golden Hop)	—	10-20	Summer
<i>Lathyrus grandiflorus</i> and <i>Lathyrus latifolius</i> (Ever-lasting Pea)	Rose-crimson . . . Purple Rose, White or Rose	6-7 6-7	July-August July-August
<i>Tropæolum speciosum</i> (Flame Nasturtium)	Scarlet . . . . .	15-16	August

\* Denotes Half-hardy species mostly suitable for South Walls.

## CLIMBERS

### SOME CLIMBING SHRUBS FOR WALLS OF DIFFERENT ASPECTS

Climbers—particularly climbing shrubs—provide a most attractive means of beautifying the walls of a house, wooden fences, and of covering trellises, arches and pergolas. See also *List of Annual and Perennial Climbers*, page 120.

#### NORTH WALLS

- |                               |                               |
|-------------------------------|-------------------------------|
| *Azara microphylla            | *Jasminum revolutum           |
| Celastrus scandens            | Lonicera japonica Halleana    |
| *Clematis (most varieties)    | *Pyracantha coccinea Lalandii |
| *Cotoneaster horizontalis and | *Pyracantha Gibbsii and var.  |
| microphylla                   | yunnanensis                   |
| *Garrya elliptica             | Roses (see list page 160)     |
| Hedera colchica (Persian Ivy) | Schizophragma integrifolia    |
| *Hydrangea petiolaris         | †*Vitis inconstans            |
| *Jasminum nudiflorum          | †*Vitis quinquefolia          |

#### SOUTH WALLS

- |                                   |                                     |
|-----------------------------------|-------------------------------------|
| Abutilon vexillarium              | Lippia citriodora                   |
| †Akebia lobata                    | Lonicera etrusca                    |
| Aristolochia Sipho (Sheltered)    | *Magnolia grandiflora (Shelter from |
| *Azara microphylla (Southern      | East Wind)                          |
| Counties)                         | Mutisia decurrens                   |
| Bignonia capreolata               | Myrtus communis                     |
| Carpenteria californica (Southern | *Passiflora cærulea and var.        |
| Counties only)                    | Constance Elliott                   |
| *Ceanothus Gloire de Versailles   | *Pyracantha angustifolia            |
| Ceanothus rigidus                 | Roses (see list page 159)           |
| Chimonanthus fragrans             | Solanum crispum                     |
| Choisya ternata                   | Tecoma grandiflora                  |
| Eccremocarpus scaber              | Veronica Hulkeana                   |
| Escallonia macrantha              | Viburnum rhytidophyllum             |
| Forsythia suspensa                | †*Vitis Coignetia                   |
| *Jasminum primulinum              | *Wistaria sinensis                  |

#### EAST WALLS

- |                            |                             |
|----------------------------|-----------------------------|
| Celastrus scandens         | Lonicera Periclymenum, etc. |
| *Cotoneaster microphylla   | *Pyracantha (various)       |
| Cotoneaster Henryana       | Roses (see list page 160)   |
| *Garrya elliptica          | Tecoma grandiflora          |
| *Jasminum officinale       | †*Vitis quinquefolia        |
| Lonicera japonica flexuosa |                             |

#### WEST WALLS

- |                             |                              |
|-----------------------------|------------------------------|
| †Akebia quinata             | *Garrya elliptica            |
| Aristolochia Sipho          | *Jasminum officinale         |
| Calycanthus occidentalis    | *Magnolia conspicua          |
| Camellia Donckelaarii       | *Magnolia grandiflora        |
| Ceanothus azureus           | *Passiflora cærulea and var. |
| Ceanothus dentatus          | Constance Elliott            |
| Chimonanthus fragrans (Sun) | Roses (see list page 159)    |
| *Clematis                   | Schizandra chinensis         |
| *Cydonia japonica and vars. | Solanum jasminoides          |
| Forsythia suspensa          | Viburnum rhytidophyllum      |

\* These are considered especially good.

† Tinted foliage in Autumn.

## CLIMBERS

### SOME CLIMBING SHRUBS FOR WALLS OF DIFFERENT ASPECTS (continued)

#### ANY ASPECT

Celastrus articulatus	*Pyracantha coccinea and var.
Celastrus scandens	Lalandii
Cotoneaster Harryana	'Jasminum officinale
Forsythia suspensa	†*Vitis inconstans
Hedera (Ivy)	†*Vitis quinquefolia
*Hydrangea petiolaris	

### CLIMBERS FOR COVERING PERGOLAS, ARCHES AND TRELLIS-WORK

*Actinidia chinensis	*Jasminum officinale
†Akebia quinata	Lonicera japonica aureo-reticulata
Aristolochia Sipho	(Gold veined) (Sun)
*Clematis (most varieties)	Lonicera Periclymenum (vars.
Celastrus scandens	belgica and serotina)
Eccremocarpus scaber	Polygonum baldschuanicum
Forsythia suspensa	Roses (see list page 159)
Hedera (Ivy) (most varieties)	†*Vitis Cointetia
'Jasminum nudiflorum (North or	†*Vitis vinifera purpurea
West aspect)	*Wistaria multijuga and var. alba

\* These are considered especially good.

† Tinted foliage in Autumn.

See also Shrubs and Trees for Seaside, Town, Shade and Chalk, etc. pages 128, 129, 134 and 139.

## PLANTS FOR COVERING THE GROUND

### ANNUALS

Ageratum (dwarf)	Malcomia maritima (Virginian
Alyssum maritimum	Stock)
Anagallis (Pimpernel)	Portulaca grandiflora
Iberis (Candytuft)	Reseda odorata (Mignonette)

### PERENNIALS

Acæna Buchananii	Mazus Pumilio, etc.
Achillea tomentosa	Mentha Requeienii
Ajuga reptans metallica crispa	Myosotis (Forget-me-not)
Alyssum saxatile compactum	Nepeta Mussinii
Antennaria dioica	Phlox stolonifera, P. subulata
Arabis (Rock Cress)	vars., etc.
Arenaria balearica, etc.	Pinks (see Dianthus neglectus)
Armeria cæspitosa, etc.	Potentilla fruticosa
Asperula suberosa, etc.	Saponaria ocymoides and S. alba
Aubrietia	Saxifraga (various)
Bellis perennis	Sedum (various)
Dianthus neglectus (Pinks)	Thymus Serpyllum, etc.
Helleborus niger	Vinca minor (Periwinkle)
Iberis sempervirens	Viola (various)
Lysimachia nummularia aurea	

### SHRUBS

See Prostrate and Trailing Shrubs under *Rock Gardens, Shrubs for*, page 108, and *Dwarf Species Roses*, page 160.

## SOME FRAGRANT PLANTS

### ANNUALS

Alyssum maritimum	Impatiens (Balsam)	Nicotiana (Tobacco Plant)
Centaurea suaveolens	Lathyrus (Sweet Pea)	Silene
Gilia nivalis	Lupinus Hartwegii	Sweet Pea (see Lathyrus)
Heliotropium (Cherry Pie)	Matthiola bicornis	Sweet Sultan (see Centaurea)
	Mignonette (Reseda)	

### BIENNIALS AND PERENNIALS

Alyssum saxatile	Dianthus Caryophyllus (Carnations, Old Clove)	Pinks (see Dianthus)
Auriculas	Dianthus (Pinks)	Primulas
Carnations (see Dianthus)	Malva moschata (Musk Mallow)	Scabiosa
Cheiranthus (Wallflower)	Matthiola (Stock)	Stock (see Matthiola)
Convallaria (Lily-of-the-Valley)	Oenothera (Evening Primrose)	Sweet William (see Dianthus)
Dianthus barbatus (Sweet William)	Paeonies	Verbena
	Phlox	Violets
		Wallflowers (see Cheiranthus)

### BULBS

Hyacinthus (Hyacinth)	Muscari (Grape Hyacinth)	Narcissus (Jonquils)
Lilium (Lily)		

### SHRUBS AND TREES

Artemisia (Southern-wood)	Jasminum officinale and var. grandiflorum	Sarcococca humilis
Azara microphylla	Lavandula (Lavender)	Skimmia japonica
Buddleia variabilis	Ligustrum (Privet)	fragnans
Calycanthus præcox	Lonicera (Honeysuckle)	Spartium junceum
Chimonanthus fragrans	Magnolia	Syringa vulgaris and vars. (Lilac)
Clematis	Myrtus apiculata and M. communis	Tilia (Lime)
Daphne Mezereum and D. cneorum	Osmanthus Delavayi	Viburnum fragrans and V. Carlesii
Genista (Broom)	Philadelphus (Mock Orange)	Wistaria
Hamamelis mollis	Phillyræa decora	
Hedera (Ivy)		

### ROSES

Banksian	K of K	Rayon d'Or
Betty Uprichard	Lady Hillingdon	Rosa arvensis
Covent Garden	La France	„ canina
“Daily Mail” (scented)	Mable Morse	„ moschata
Etoile de Hollande	Madame Butterfly	Scotch Roses
Eugenie Lamesch	Mrs. Dunlop Best	Shot Silk
General McArthur	Mrs. Edward Marley	Viscountess Folkestone
George Dickson	Mrs. Foley Hobbs	Waltham Cross
Gloire de Dijon	Mrs. Henry Bowles	Yvonne Rabier
Gruss an Teplitz	Ophelia	Zephyrine Drouhin
Henrietta	Penzance Briars	
Hugh Dickson	Red Letter Day	

### PLANTS WITH FRAGRANT FOLIAGE

Artemisia	Melissa (Balm)	Salvia officinalis (Sage)
Aloysia citriodora	Mentha (Mint) [Balm]	Santolina
Asperula odorata	Monarda didyma (Bee's)	Rosa rubiginosa
Lavandula (Lavender)	Rosmarinus (Rosemary)	Thymus (Thyme)



## FLOWERS FOR CUTTING

See also Lists of Everlasting Flowers (below) and Ornamental Grasses, page 58.

### ANNUALS

Alonsoa	Cornflower	Matthiola (Stocks)
Arctotis	Cosmos	Nigella (Love-in-a-Mist)
Calendula (Pot Marigold)	Godetia	Reseda (Mignonette)
Calliopsis	Gypsophila	Schizanthus
Centaurea suaveolens	Helichrysum	Verbena
(Sweet Sultan)	Lathyrus (Sweet Pea)	Zinnia
Clarkia	Lavatera	

### PERENNIALS

Anemone japonica	Dianthus Caryophyllus	Heuchera
Aquilegia (Columbine)	(Carnations)	Iris
Aster Amellus (Michaelmas Daisy)	Digitalis (Foxglove)	Kniphofia (Red Hot Poker)
Cheiranthus (Wallflower)	Echinops Ritro	Phlox
Chrysanthemums	Forget-me-not	Primula (Primrose, etc.)
Convallaria (Lily-of-the Valley)	Gaillardia	Pyrethrum
Delphinium	Gypsophila	Rudbeckia
Dianthus barbatus	Helenium	Scabiosa
(Sweet William)	Helianthus (Sunflower)	Viola odorata (Violet)
	Helleborus niger	

### BULBS AND TUBERS

Anemones	Gladiolus	Narcissus
Daffodils	Iris	Tulips
Dahlia	Lilium (Lilies)	
Galanthus (Snowdrop)	Muscari (Grape Hyacinth)	

### SHRUBS AND TREES

Chimonanthus fragrans	Hamamelis	Olearia Haastii
Cytisus (Broom)	Jasminum nudiflorum	Philadelphus (Mock Orange)
Deutzia	Kerria japonica	Prunus Amygdalus
Erica carnea, etc.	Laurustinus	(Almond)
Escallonia	Lavandula	Rosa (Roses)
Forsythia suspensa, etc.	Leycesteria	

### EVERLASTING FLOWERS

Everlasting flowers are again in favour for decorative purposes. They should be cut before they are fully open and hung head downwards in paper bags to dry.

Acroclinium H.H.A. See Helipterum	Helipterum—H.H.A. (now includes Acroclinium and Rhodanthe)
Ammobium alatum grandiflorum (Everlasting Sunflower)—H.H.B.	Lavandula spica—H.S.
Gomphrena globosa (Globe Amaranth)—H.H.A.	Limonium (Statice)—H.H.A. and H.P.
Gypsophila paniculata—H.P.	Lunaria annua (Honesty)—H.B.
Helichrysum bracteatum and vars. and H. orientale—H.H.A. H.	Rhodanthe—H.H.A. See Helipterum
bellioides and H. frigidum—H.P.	Statice (Sea Lavender) See Limonium
	Waitzia—H.H.A.
	Xeranthemum (Immortelles)—H.A.

H.A., H.B., and H.P. denote Hardy Annual, Hardy Biennial and Hardy Perennial. H.H.A., H.H.B., and H.H.P. denote Half-hardy Annual, Half-hardy Biennial and Half-hardy Perennial. H.S. denotes Hardy Shrub. See also list of Ornamental Grasses, page 58.

# FLOWERS THAT ARE ESPECIALLY ATTRACTIVE TO BEES

## ANNUALS

<i>Alyssum maritimum</i>	<i>Matthiola bicornis</i> (Night-scented Stock)
<i>Borago</i> (Borage)	<i>Nasturtium</i>
<i>Collinsia bicolor</i>	<i>Nemophila insignis</i>
<i>Gilia tricolor</i>	<i>Phacelia</i>
<i>Iberis odorata</i> (Candy)	<i>Reseda odorata</i> (Mignonette)
<i>Limnanthes Douglasii</i>	<i>Salvia Horminum</i>
<i>Lupinus</i> (Lupins)	<i>Scabiosa atropurpurea</i>
<i>Malope grandiflora</i>	<i>Tropæolum</i> (Nasturtiums)
<i>Mignonette</i>	

## PERENNIALS

<i>Althæa rosea</i> (Hollyhock) [Better grown as Biennial]	<i>Lupinus</i>
<i>Alyssum saxatile</i>	<i>Meconopsis</i>
<i>Anchusa italica</i>	<i>Monarda didyma</i>
<i>Aubrietia</i>	<i>Nepeta Mussini</i> (Catmint)
<i>Campanulas</i>	<i>Scabiosa</i>
<i>Catmint</i>	<i>Sedum</i> (Stonecrop)
<i>Cheiranthus</i> (Wallflower)	<i>Sweet Alyssum</i>
<i>Delphiniums</i>	<i>Tradescantia virginiana</i>
<i>Helleborus niger</i>	<i>Violas</i>
<i>Hollyhock</i>	<i>Wallflowers</i>

## SHRUBS AND TREES

<i>Daphne Mezereum</i>	<i>Rosmarinus officinalis</i> (Rosemary)
<i>Rosa rubiginosa</i> (Sweet Briar)	<i>Tilia</i> (Lime)

See also list of Plants with Blue Flowers, all of which are attractive to bees, page 65.

## POISONOUS PLANTS

Not many of our garden plants are really poisonous in character, but those that are should be avoided in gardens where children are allowed to play.

### POISONOUS IF EATEN

<i>Aconitum</i> (Monkshood or Wolfsbane)	<i>Delphinium</i> (Larkspur, Annual)
<i>Amanita muscaria</i> (Fly Toadstool)	<i>Helleborus niger</i> (Christmas Rose)
<i>Amanita phalloides</i> (Death Cap Toadstool)	<i>Kalmia angustifolia</i> and <i>latifolia</i> (Sheep and Mountain Laurel)
<i>Datura stramonium</i>	<i>Passiflora incarnata</i> (Passion Flower)

### NOSE IRRITANTS WHEN IN FLOWER

<i>Acer rubrum</i> (Red Maple)	<i>Lonicera flava</i> (Yellow Honeysuckle)
<i>Aster Novæ-angliæ</i> (Michaelmas Daisy)	<i>Michaelmas Daisy</i>
<i>Centaurea Cyanus</i> (Cornflower)	<i>Miscanthus compactus</i> (Plume Grass)
<i>Chrysanthemum</i> (Ox-eye Daisy)	<i>Poa annua</i> (Meadow Grass)
<i>Cornflower</i>	<i>Salix nigra</i> (Black Willow)
<i>Dianthus chinensis</i> (Chinese Pink)	<i>Solidago canadensis</i> (Golden Rod)
<i>Ipomœa purpurea</i> (Morning Glory)	<i>Spiræa Vanhouttii</i> (Bridal Wreath)

# TOWN GARDEN

## PLANTS FOR SMOKY TOWN GARDENS

### HARDY ANNUALS

Alyssum maritimum (Sweet Alyssum)	Malcomia (Virginian Stock)
*Calendula officinalis (Pot Marigold)	*Matthiola bicornis (Night-scented Stock)
Centaurea Cyanus (Cornflower)	Nemophila insignis
*Chrysanthemums (Annual)	Nigella (Love-in-a-Mist)
*Clarkia	Papaver (Poppies)
Collinsia bicolor	*Reseda odorata (Mignonette)
*Coreopsis tinctoria and C. Drummondii	Scabiosa atropurpurea
*Eschscholzia californica	Sweet Pea (see Lathyrus)
Godetia	*Tropæolum majus and minus (Nasturtium)
Gypsophila elegans	Saponaria calabrica
Iberis (Candytuft)	Silene
Lathyrus odoratus (Sweet Pea)	Verbena
Lupinus	Zinnia elegans

### HALF-HARDY ANNUALS

Ageratum "	Nicotiana (Tobacco Plant)
Brachycome	Petunia
Callistephus chinensis (China Asters)	Phlox Drummondii
Helichrysum	Salpiglossis
Lobelia Erinus [Stock]	*Tropæolum (Canary Creeper)
*Matthiola annua (Ten-weeks')	Verbena

### BIENNIALS

Althæa rosea (Hollyhock)	Lunaria biennis (Honesty)
*Antirrhinum (Snapdragon)	Matthiola (Stocks)
Campanula Medium (Canterbury Bells)	Myosotis (Forget-me-not)
Cheiranthus (Wallflower)	Oenothera (Evening Primrose)
Dianthus barbatus (Sweet William)	Scabiosa
Dianthus chinensis (Indian Pink)	Sweet William (see Dianthus)
Digitalis purpurea (Foxglove)	*Wallflowers (see Cheiranthus)
Glaucium tricolor (Horned Poppy)	Viola

### PERENNIALS

Achillea	*Delphinium
Aconitum Napellus	Dianthus (Carnations and Pinks)
Adenophora	Doronicum plantagineum
Alyssum saxatile	Erigeron speciosus superbus
Anchusa (Dropmore)	Gaillardia grandiflora
*Anemone japonica	Galega officinalis, etc.
Aquilegia (Columbine)	Geum, Mrs. Bradshaw, etc.
Arabis alba and fl. pl.	Gypsophila paniculata
Armeria latifolia	Helenium autumnale, H. Riverton Gem, H. superbum, etc.
Aster Amellus (Michaelmas Daisy)	*Helianthus rigidus, etc.
Aubrietia (Rock Cress)	Helleborus niger (Christmas Rose)
Bellis perennis (Daisy)	Hemerocallis (Day Lily)
Boltonia	Heuchera sanguinea
Campanula (Bellflower)	Iberis (Candytuft)
Cerastium tomentosum	Iris germanica, etc.
Chrysanthemums (various)	Kniphofia (Red Hot Poker)
Coreopsis grandiflora	Lupinus
Dahlia (various)	Lychnis chalcidonica, etc.

\* Denotes plants disliked by Sparrows.

## TOWN GARDEN

### PLANTS FOR SMOKY TOWN GARDENS (continued)

#### PERENNIALS (continued)

Lysimachia nummularia (Creeping Jenny)	Primula vulgaris (Primrose)
Malva moschata (Mallow)	" (Polyanthus)
Michaelmas Daisies (see Aster Amellus)	Pyrethrum
† Monarda didyma, <i>Cambridge Scarlet</i>	Rudbeckia laciniata fl. pl., etc.
Mullein (Verbascum)	Saxifraga cordifolia
Myosotis (Forget-me-not)	Saxifraga umbrosa (London Pride)
Nepeta Mussinii (Catmint)	Scabiosa caucasica
Oenothera biennis (Evening Primrose)	† Sedum spectabile
Pansy	Sempervivum (various)
Pæonia (various)	Solidago (Golden Rod)
* Papaver orientale (Oriental Poppy)	Solomon's Seal (Polygonatum)
Pentstemons (various)	Statice latifolia
Phlox paniculata vars.	Thalictrum aquilegifolium
Polygonatum (Solomon's Seal)	Tradescantia virginiana
Potentilla (various)	Thymus (Thyme)
	Veronica (various)
	Viola (various)

\* Denotes plants disliked by Sparrows.

#### BULBS AND TUBERS

Allium Moly and A. neapolitanum	Hyacinths
† Amaryllis Belladonna	Iris, English, Spanish and † I. reticulata
Begonia (various)	† Leucojum vernum carpathicum
Chionodoxa (Glory-of-the-Snow)	Lilium auratum, L. candidum, L. regale, L. tigrinum, etc.
Colchicum autumnale	Lily-of-the-Valley (Convallaria)
Crocus (various)	Montbrietia
Daffodils	Narcissus
Eranthis (Winter Aconite)	Muscari botryoides
Fritillaria Imperialis	Scilla hispanica, etc.
Galanthus nivalis (Snowdrop)	Tulips (various)
Gladiolus (various) [cans]	
Galtonia (syn. Hyacinthus candi-	

Most bulbs will grow quite well in semi-shaded situations.

#### SHRUBS AND TREES

Acacia	Cercis siliquastrum (Judus Tree)
Acer Pseudoplatanus (Sycamore)	Colutea arborescens (Bladder Senna)
and A. rubum (Red Maple)	Cornus alba sibirica (Dogwood)
Æsculus (Horse Chestnut) [most vars.]	† Cotoneaster horizontalis, C. microphylla and C. Simonsii
Ailanthus glandulosus (Tree of Heaven)	Cratægus, Oxyacantha (Hawthorn)
Alnus glutinosa	† Cydonia japonica Simondsii (Quince)
Amelanchier lævis	† Daphne Mezereum
Andromeda floribunda	† Deutzia scabra, etc.
Aucuba japonica	Diervilla (Weigela)
Berberis (Mahonia) † B. stenophylla and B. vulgaris	Euonymus japonicus (Spindle Tree)
Betula verrucosa (Silver Birch)	Fagus sylvatica var. purpurea (Purple Beech)
Buxus sempervirens var. Hands-worthii (Box)	Forsythia suspensa, etc. (Golden Bell)
Catalpa bignonioides (Indian Bean Tree)	Fraxinus Ornus (Ash)
	Ginkgo biloba (Maidenhair Tree)
	† Hibiscus syriacus

† Denotes the Royal Horticultural Society's Award of Garden Merit.

## TOWN GARDEN

### SHRUBS AND TREES (continued)

Hypericum calycinum	Prunus Persica fl. pl. (Double Peach)
Ilex Aquifolium (Holly)	† „ cerasifera Pissardii (Purple-leaved Plum)
Juglans regia (Walnut)	Pyrus Aucuparia (Mountain Ash)
Kalmia latifolia	„ baccata (Siberian Crab)
† Kerria japonica fl. pl. (Jew's Mallow)	„ Rhododendrons, <i>Cunningham's White</i> and <i>Cunningham's Blush</i>
Laburnum vulgare	Rhus typhina
Ligustrum (Privet)	† Ribes sanguinea splendens
Liriodendron Tulipifera (Tulip Tree)	Robinia Pseudacacia
Lonicera (Honeysuckle) Bush vars.	Sambucus nigra and S. n. var. foliis aureis
Magnolia conspicua and † M. stellata	Skimmia japonica
† Mahonia Aquifolium	Spiræas (various)
† Olearia Haastii (New Zealand Daisy Bush)	Symphoricarpos racemosus (Snow-berry)
Osmanthus Aquifolium	Syringa (Lilac)
Paulownia imperialis	Viburnum Opulus var. sterile
† Pernettva mucronata	„ tomentosum var. plicatum
† Philadelphus grandiflorus, etc. (Mock Orange)	„ Tinus (Laurustinus)
Phylliræa media	Vinca (Periwinkle)
Platanus acerifolia (Plane)	Wistaria sinensis
Prunus Amygdalus (Almond)	Yucca gloriosa (Adam's Needle)
„ Avium fl. pl.	
„ Laurocerasus (Cherry Laurel)	

### CLIMBERS

Ampelopsis vitaceæ (Virginia Creeper)	Jasminum officinalis
Aristolochia Sipho	Kerria japonica fl. pl. (Jew's Mallow)
Clematis flammula	† Pyracantha coccinea Lalandii
„ Jackmanii	„ Gibbsii, etc.
Hedera (Ivy) most sorts	Solanum crispum
† Jasminum nudiflorum	Wistaria sinensis

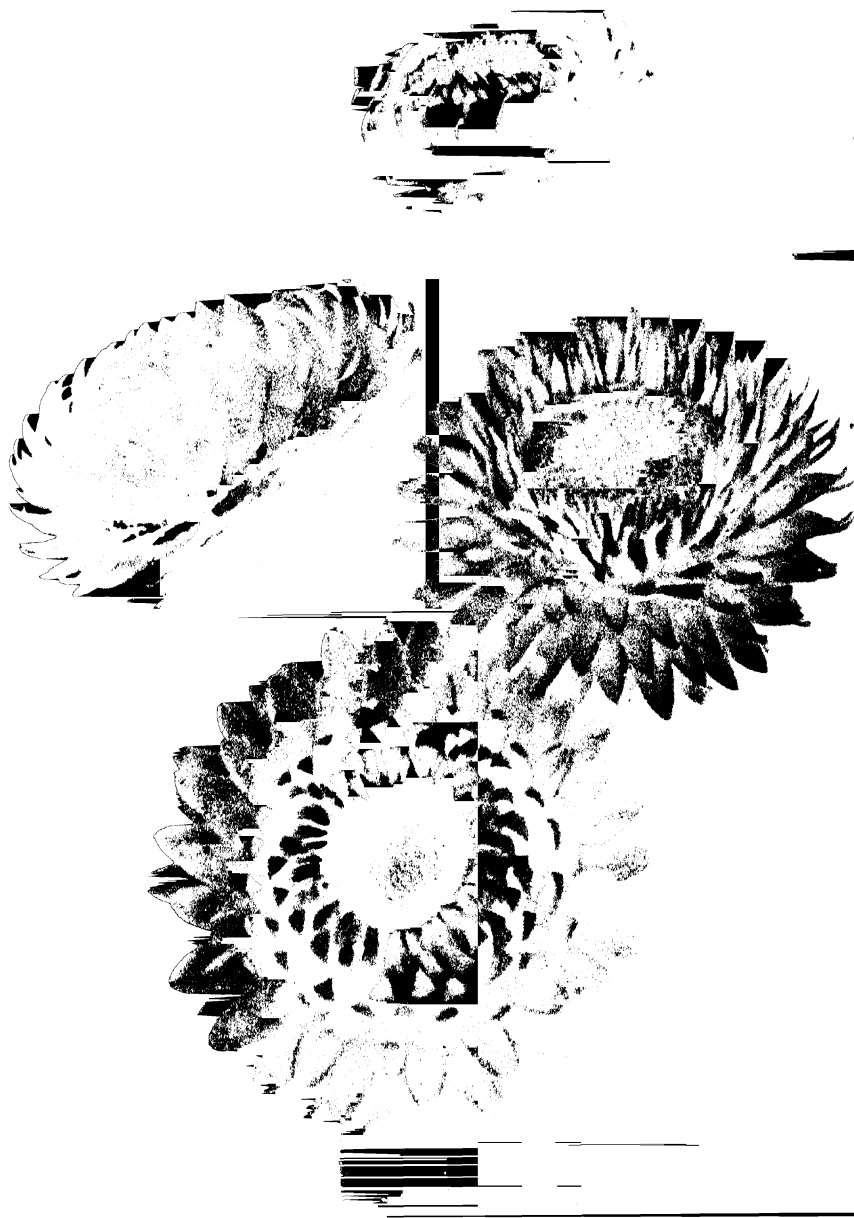
† Denotes the Royal Horticultural Society's Award of Garden Merit.

Generally speaking, evergreens, and more especially conifers, are not happy in towns or in congested areas.

### SOME USEFUL PLANTS FOR TUBS

Agapanthus	Cupressus (Various)	Nepeta (Catmint)
Aloysia citriodora	Dahlia	Olearia
Aubrietia	Euonymus	Osmanthus
Auricula	Fuchsia (Especially F. Riccartonii)	Petunia
Begonia	Geranium	Prunus Laurocerasus
Berberis (Dwarf Vars.)	Grasses (Various)	Salvia patens
Bulbs (various)	Heuchera	Tropæolum (Nasturtium)
Buxus (Box) [Green and Variegated]	Hydrangea	Veronica (Speedwell)
Calceolaria	Iberis (Candytuft)	Viburnum Tinus (Laurustinus)
Cheiranthus (Wallflower)	Lavandula (Lavender)	Viola (Various)
Chrysanthemums	Marguerite (Chrysanthemum frutescens)	Wallflower (Cheiranthus)
Chrysanthemum frutescens (Marguerite)		

See also plants recommended for Window Boxes (page 130), any of which may be grown in tubs.



[R. A. Malby.

• HELICHRYSUM (EVERLASTING FLOWERS).



## SOME PLANTS FOR SEASIDE GARDENS

### HARDY ANNUALS

Alyssum maritimum	Limnanthes Douglasii
Calendula officinalis (Pot Marigold)	Linum grandiflorum
Cosmos	Lupinus nanus
Godetia	Malcomia (Virginian Stock)
Humulus (Hop)	Nigella damascena (Love-in-a-Mist)
Iberis (Candytuft)	Papaver (Poppy)
Layia (Tidy Tips)	Phacelia
Legousia	Tropæolum (Nasturtium)
Leptosyne Douglasii	

### HALF-HARDY ANNUALS

Anagallis grandiflora	Lychnis cardinalis (Syn. Viscaria)
Brachycome iberidifolia	Tagetes (African and French Marigolds)
Dimorphotheca aurantiaca	

### BIENNIALS

Antirrhinum (Snapdragon)	Matthiola (Stocks, Intermediate, East Lothian and Giant or Brompton)
Campanula Medium (Canterbury Bells)	Silene compacta
Cheiranthus (Wallflower)	Wallflowers (Cheiranthus)

### PERENNIALS

Acanthus mollis	*Frankenia (Sea Heath)
*Acantholimon venustum	Gaillardia grandiflora
*Alyssum saxatile	Gypsophila paniculata
Anchusa italica <i>Morning Glory</i>	Helenium
*Arabis	*Helleborus niger
Aster Amellus (Michaelmas Daisy)	Heuchera sanguinea
*Aubrietia (Rock Cress)	Iberis (Candytuft)
*Campanula (various)	Phlox paniculata
*Candytuft (Iberis)	Scabiosa caucasica
Delphinium	*Senecio Clivorum
*Dianthus (various)	Silene maritima
Eryngium (Sea Holly)	*Thymus (various)
	*Veronica (various)

\* Denotes plants useful for Rock Gardens.

### SHRUBS AND TREES

Abies (Fir) canadensis, A. sitchensis, etc.	*Cotoneaster (Rockspray) Dwarf vars.
Acer Pseudoplatanus (Sycamore)	Cratægus (Hawthorn)
Alnus (alder)	*Cupressus macrocarpa
Arbutus Unedo (Strawberry Tree)	Cytisus (Broom)
Atriplex Halimus	Deutzia
Aucuba japonica	Elæagnus
Azara	Escallonia (various)
Berberis Darwinii, etc.	*Euonymus <i>Silver Queen</i>
Buddleia globosa, B. variabilis, etc.	Fraxinus excelsior (Ash)
Buxus (Box)	Fuchsias (Hardy)
Calluna (Heather)	Garrya elliptica
Choisya ternata	*Genista (Broom)
*Cistus laurifolius (Rock Rose)	Griselinia littoralis
Cornus sanguinea (Dogwood)	*Helianthemum (Sun Rose)

\* Denotes dwarf species suitable for the Rock Garden.



## THE SEASIDE GARDEN

### SHRUBS AND TREES (continued)

Hippophaë rhamnoides (Sea Buck-thorn)	Populus (Poplar) various
Hydrangea hortensis vars.	Prunus spinosa (Blackthorn)
Ilex Aquifolium (Holly)	Pyrus Aucuparia (Mountain Ash)
Laburnum alpinum	Quercus Cerris and Q. Ilex
Lavandula spica	Rhododendrons (some vars.)
Leycesteria formosa	Rosa canina, R. rubiginosa and R. spinosissima
Ligustrum (Privet)	Rosmarinus officinalis (Rosemary)
Lonicera nitida	Sambucus (Elder) nigra and var. foliis aureis
Mahonia Aquifolium	Spartium junceum (Spanish Broom)
Myrtus (Myrtle)	Syringa (Lilac)
Olearia Haastii	Tamarix anglica, etc.
„ moschata, O. speciosa, etc.	Tsuga canadensis, etc.
Osmanthus illicifolia	Ulex europæus fl. pl. (Double Gorse)
Phillyræas	*Veronica speciosa, etc.
Pinus Laricio and var. nigricans	Viburnum Tinus (Laurustinus)
„ montana, P. Pinaster and P. radiata (syn, insignis)	Yucca gloriosa

\* Denotes dwarf species suitable for the Rock Garden.

## SOME PLANTS FOR WINDOW BOXES

### FACING NORTH

Arbor vitæ (Shrub)	Chrysanthemums	Lobelia Erinus vars.
Small Plants	Convallaria (Lily-of-the-Valley)	Mimulus moschatus
*Aspidium angulare, etc.	*Fatsia Sieboldi (Small Plants)	Pansies
*Aucuba japonica (Small Plants)	*Ferns (Hardy & Half-hardy)	Saxifraga (various)
*Auricula	Hedera Helix (Ivy)	Sedum spectabile
Buxus sempervirens (Small Plants)	Lily-of-the-Valley (Convallaria)	Vinca major and V. minor (Periwinkle)
Cheiranthus (Wall-flower)		Violas
		Wallflower (Cheiranthus)

### FACING EAST

*Anemone coronaria	Cheiranthus (Wallflower)	Hyacinthus orientalis
Antirrhinums (Snapdragon)	Chionodoxa Lucilia, etc.	Lavandula spica
Arbor vitæ (Shrub)	Chrysanthemums	*Lily-of-the-Valley
Small Plants	Clarkia	Lobelia Erinus vars.
*Aspidium angulare, etc.	Cornflower (Centaurea Cyanus)	*Lysimachia Nummularia
*Aucuba japonica	Crocus	Matthiola annua (Stock, Ten Weeks')
*Begonias	Dianthus (Pinks)	*Mimulus moschatus
Bellis perennis (Daisy)	*Fatsia Sieboldi	Muscaria conicum
Buxus sempervirens (Box) Small Plants	Ferns (Hardy and Half-hardy)	*Myosotis alpestris, etc. (Forget-me-not)
Calceolarias (Shrubby)	*Fuchsias	*Narcissus (various)
Campanula carpatica, C. isophylla, etc.	Galanthus (Snowdrop)	Nasturtium
Centaurea Cyanus (Cornflower)	Geum coccineum, etc.	Pansies
	Gypsophila elegans	Pinks (Dianthus)
		*Polyanthus

\* Denotes subjects that will grow in the Shade.

## SOME PLANTS FOR WINDOW BOXES

### FACING EAST (continued)

<i>Primula vulgaris</i> vars.	<i>Scilla hispanica</i> , S.	* <i>Vinca major</i> and V.
<i>Reseda</i> (Mignonette)	<i>sibirica</i> , etc.	minor
Roses (Dwarf Poly- antha)	<i>Sedum spectabile</i>	Violas
<i>Saxifraga</i> (various)	<i>Silene pendula</i>	Wallflower
<i>Scabiosa atropurpurea</i>	Stock, Ten-Weeks' ( <i>Matthiola annua</i> )	( <i>Cheiranthus</i> )

### FACING WEST

* <i>Anemone coronaria</i> , etc.	<i>Galanthus</i> (Snowdrop)	<i>Saxifraga</i> (various)
<i>Antirrhinum</i> (various)	<i>Geum coccineum</i> , etc.	<i>Scabiosa atropurpurea</i>
<i>Arbor vitæ</i> (Shrub)	<i>Gypsophila elegans</i> , etc.	<i>Scilla hispanica</i> and S.
Small Plants	<i>Hyacinthus orientalis</i>	<i>sibirica</i>
* <i>Auricula</i>	<i>Hydrangea hortensis</i>	<i>Sedum spectabile</i> , etc.
* <i>Begonias</i>	vars.	<i>Silene pendula</i> vars.
<i>Bellis perennis</i> (Daisy)	<i>Lavandula spica</i>	<i>Skimmia japonica</i> , etc.
<i>Calceolarias</i> (Shrubby)	(Lavender)	Stock, Ten-Weeks'
<i>Campanula carpatica</i> ,	<i>Lobelia Erinus</i> vars.	( <i>Matthiola annua</i> )
<i>C. fragilis</i> , etc.	* <i>Lysimachia Nummu-</i>	<i>Tropæolum</i>
<i>Cheiranthus</i>	<i>laria</i>	( <i>Nasturtium</i> )
(Wallflower)	* <i>Mimulus moschatus</i>	<i>Tulips</i> (various)
<i>Chionodoxa</i>	<i>Muscaria conicum</i> , etc.	<i>Veronica rupestris</i>
<i>Chrysanthemum</i>	* <i>Myosotis</i> (Forget-me-	<i>Viburnum Tinus</i>
<i>Centaurea Cyanus</i>	not)	(Small Plants)
(Cornflower)	* <i>Narcissus</i>	<i>Vinca major</i> & V. minor
<i>Crocus</i>	* <i>Polyanthus</i>	( <i>Periwinkle</i> )
* <i>Daffodils</i>	<i>Primula vulgaris</i> vars.	Violas
* <i>Fatsia Sieboldii</i>	<i>Reseda</i> (Mignonette)	Wallflower
Ferns (Hardy and Half- hardy)	Roses (Dwarf poly- antha)	( <i>Cheiranthus</i> )
<i>Fuchsias</i> (various)		

### FACING SOUTH

In addition to all plants included in the lists for Window Boxes facing North, East and West, the following subjects may be included :

<i>Abutilon Thompsonii</i>	<i>Convolvulus major</i> and	<i>Geraniums</i>
<i>Agathæa cœfestris</i>	<i>C. minor</i>	<i>Heliotropium</i> (Cherry Pie)
<i>Ageratum mexicanum</i>	<i>Coreopsis grandiflora</i>	<i>Iberis sempervirens</i>
vars.	<i>Coreopsis tinctoria</i>	(Candytuft)
<i>Albizzia lophantha</i>	(Dwarf vars.)	<i>Impatiens</i> (Balsam)
<i>Aloysia citriodora</i>	<i>Cupressus Fletcheri</i>	<i>Mesembryanthemum</i>
(Lemon Plant)	(Shrub)	(Ice Plant)
<i>Alyssum maritimum</i> &	<i>Dahlias</i> (Mignon)	<i>Myrtus communis</i>
<i>A. saxatile</i>	Dwarf	(Myrtle)
<i>Arabis albida</i> fl. pl.	<i>Dianthus Caryophyllus</i>	<i>Pelargonium</i> , Zonal
<i>Asparagus Sprengeri</i>	(Carnation)	(Ivy-leaved)
<i>Aubrietia</i>	<i>Echeveria secunda</i>	<i>Pentstemons</i> (various)
<i>Calendula officinalis</i>	<i>glauca</i>	<i>Petunias</i> (various)
Candytuft ( <i>Iberis sem-</i>	* <i>Erythronium</i> (Dog's	Sweet Sultan
<i>pervirens</i> )	Tooth Violet)	<i>Verbena</i> (hybrida)
Carnations ( <i>Dianthus</i>	<i>Gazania splendens</i> , etc.	
<i>Caryophyllus</i> )	<i>Genista fragrans</i> (syn.	
<i>Collinsia bicolor</i>	<i>Cytisus fragrans</i> )	

\* Denotes subjects that will grow in the Shade.

## ROOM PLANTS

When buying plants for use in rooms, it is always well worth while to get good plants from a good grower. The difference in price is trivial in the long run, and care is wasted upon a sickly, ill-grown plant, forced for the market, the kind that are mostly dealt in by the travelling hawker.

**Watering Room Plants.**—Watering must be carefully regulated to the needs of the plant, and good drainage is most essential. If the drainage is not absolutely free, the soil will become waterlogged and sour: conditions under which no plant will thrive. (See also Watering in the Open and Watering Under Glass. page 175.)

### SOME PLANTS THAT WILL THRIVE IN A ROOM

Although almost any greenhouse plant may be brought indoors and used for decorating a room, so long as it is returned periodically to the greenhouse to recuperate, the following is a list of plants which may be grown continuously in rooms, withstanding the effects of gas, fires and dust.

<i>Adiantum capillus-veneris</i> (Maidenhair Fern)	* <i>Clivia miniata</i> (syn. <i>Imantophyllum</i> )	* <i>Oxalis cernua</i> and <i>O. floribunda</i>
<i>Araucaria excelsa</i> (Norfolk Island Pine)	<i>Cocos Weddelliana</i>	<i>Phoenix Roebelinii</i>
<i>Aspidistra</i> (Parlour Palm)	<i>Cyclamen</i> (various)	* <i>Phyllocactus</i> (Flowering Cactus)
<i>Aspidium</i> (see <i>Polystichum</i> )	<i>Cyperus alternifolius</i>	<i>Platynerium alaicorne</i>
<i>Asplenium bulbiferum</i> (Carrot-leaved Fern)	<i>Dracæna stricta</i> [Cordyline] (Small)	<i>Polystichum falcatum</i>
<i>Azalea</i> (various)	<i>Davallia canariensis</i> (Hare's Foot Fern)	<i>Primula obconica</i>
<i>Begonia Rex</i>	<i>Fatsia</i> (syn. <i>Aralia</i> ) <i>japonica</i> (Japanese <i>Aralia</i> )	<i>Primula sinensis</i>
<i>B. weltoniensis</i>	<i>Ficus elastica</i> (India-rubber Plant)	<i>Pteris cretica</i> (Ribbon Fern)
* <i>Campanula isophylla</i> & var. <i>alba</i> (Hanging Bellflower)	<i>Geranium</i>	<i>P. serrulata</i>
* <i>Cereus flagelliformis</i> (Rat-tail Cactus)	<i>Kentia Forsteriana</i>	<i>P. tremula</i>
<i>Chamærops humilis</i> (Fan Palm)	<i>Mammillaria</i>	<i>Sansevieria Laurentii</i>
	<i>Nephrolepis exaltata</i>	<i>Saxifraga sarmentosa</i>
		<i>Sedum Ewersii</i>
		<i>Trachycarpus excelsus</i>
		* <i>Vallota purpurea</i> (Scarborough Lily)

NOTE.—\* indicates flowering plants. In addition to these, there are, of course, numerous bulbs which may be utilised for indoor decoration.

# PLANTS FOR THE SHADE

## ANNUALS

Although these plants will grow in shady situations, most of them do better in semi-shade, and some in full sun.

Alyssum maritimum	Clarkia *elegans	Reseda (Mignonette)
Amarantus caudatus	Coreopsis bicolor nana	*Sweet Sultan (Centaurea
Asperula	Cosmos (Mexican Aster)	suaveolens)
Calendula officinalis (Pot	Godetia	Tagetes (African and
Marigold)	Iberis (Candytuft)	French Marigolds)
Candytuft (Iberis)	Limnanthes Douglasii	Tropæolum minus
Centaurea suaveolens	Malcomia (Virginian	(Nasturtium)
(Sweet Sultan)	Stock)	Virginian Stock
Chrysanthemum(Annual)	Phlox Drummondii	(Malcomia)

## BIENNIALS

Campanula Medium	Lunaria biennis	Oenothera (Evening
Campanula pyramidalis	Myosotis (Forget-me-	Primrose)
Digitalis (Foxglove)	not)	Papaver (Iceland Poppy)

## PERENNIALS

Aconitum (Monkshood)	Lobelia cardinalis
Anemone japonica	Maianthemum bifolium
Astilbe Davidii	Mimulus moschatus, etc.
Auriculas	Phlox decussata
Chrysogonum virginianum	Polyanthus
Cimicifuga racemosa	Polygonatum multiflorum
Dentaria digitata, D. enneaphylla	Primula vulgaris, P. Wanda, etc.
and D. polyphylla	Saponaria officinalis
Dicentra eximia, D. formosa, etc.	Saxifraga cordifolia, S. umbrosa, etc.
Epimedium pinnatum elegans	Sedum spectabile
Epimedium macranthum, etc.	Smilacina racemosa, S. stellata, etc.
Ferns (Hardy)	Spiræa Aruncus, S. Filipendula, etc.
Helleborus (Christmas Rose)	Trillium grandiflorum
Hemerocallis fulva	Trollius europæus
Hosta (Funkia) Fortunei, H. Sieboldi,	Uvularia grandiflora
etc.	Willow Gentians
Lilium pardalinum	Wood Anemones.

## ROCK PLANTS

Acæna (various)	Haberlea rhodopensis	Ourisia coccinea
Anchusa myosotidiflora	Iberis (Candytuft)	Primula (various)
Anemone Hepatica	Iris (Dwarf Bearded,	Ramondia pyrenaica
Aquilegia glandulosa	Hybrid and Bulbous)	Ranunculus alpestris
Arenaria (various)	Lysimachia Nummularia	Saxifraga (various)
Campanula carpatica &	aurea	Viola (various)
C. cochlearifolia	Mertensia primuloides	Waldsteinia trifolia
Cyclamen (Hardy vars.)	Omphalodes Luciliæ	
Gentiana (various)	and O. verna	

## BULBS AND TUBERS

Anemones (various)	Cyclamen (Hardy)	Hyacinth (some vars.)
Colchicum (various)	Daffodils	Leucojum (various)
Convallaria majalis (Lily-	Eranthis (Winter	Liliums (some vars.
of-the-Valley)	Aconite)	semi-shade)
Grocus (various)	Erythronium	Scilla (Bluebell)

## PLANTS FOR THE SHADE

### SHRUBS AND TREES

Andromeda (various)	Mahonia Aquifolium	Ruscus aculeatus
Aucuba japonica	Olearia Haastii	(Butcher's Broom)
Berberis stenophylla	Pachysandra terminalis	Ruscus Hypoglossum
Buxus sempervirens	Pernettya mucronata	Sambucus nigra (Elder)
(Box)	Phillyræa latifolia, etc.	Sarcococca ruscifolia,
Choisya ternata	Polygala	etc.
Cornus alba (Dogwood)	Prunus Laurocerasus &	Skimmia japonica
Cotoneaster buxifolia, C.	var. Zabeliana	Spiræa japonica
microphylla, etc.	Pyracantha coccinea	Taxus baccata (Yew)
Euonymus radicans, etc.	Rhododendron ponti-	Viburnum Tinus
Euphorbia Wulfeni	cum, R. Cunningham's	Viburnum Traversii
Gaultheria Shallon	White, etc.	Vinca major and V.
Hypericum calycinum	Ribes alpinum, R. aur-	minor (Periwinkle)
Leycesteria formosa	eum, and R. san-	
Ligustrum (Privet)	guineum	

### CLIMBERS

Ampelopsis (various)	Jasminum	Vinca minor (Periwinkle)
Hedera (Ivy)	Vinca major (Periwinkle)	Wistaria

## PLANTS NEEDING A SHELTERED SUNNY SITE

### ANNUALS, HALF-HARDY

Acroclinium	Celosia plumosa var.	Mesembryanthemum
(Now Helipterum)	aurea (Prince of Wales'	Phlox Drummondii
Arctotis grandis	Feathers)	Rhodanthes
	Helipterum	Schizanthus
	Impatiens (Balsam)	

### PERENNIALS

Coronilla cappadocica,	Erodium (Heron's Bill)	Phlox paniculata, etc.
etc.	Eryngium (Sea Holly)	

### BULBS AND TUBERS

Amaryllis Belladonna	Lapeyrouisia	Tulips
Calochortus pulchellus,	Phædranassa chloracra	Watsonia Meriana, etc.
etc.	Polianthes tuberosa	Zephyranthes (Zephyr
Habranthus pratensis	Schizostylis coccinea	Flower)
Ixia (African Corn Lily)	Sparaxis	
Ixiolirion montanum	Sternbergia	

### SHRUBS AND TREES

Abutilon vitifolium	Escallonia (several)	Raphithamnus cyano-
Berberidopsis corallina	Fuchsias (hardy species)	carpus
Buddleia Colvillei	Garrya elliptica	Sophora tetraptera
Caryopteris (several)	Lapageria rosea	Stauntonia hexaphylla
Cassia corymbosa	Leptospermum (several)	Tecoma grandiflora, etc.
Ceanothus (several)	Mitraria coccinea	Teucrium fruticans
Choisya ternata	Oxothamnus rosmarini-	Trachelospermum
Clethra arborea	folius	(several)
Coronilla glauca	Plagianthus Lyalli	Viburnum macro-
Dendromecon rigidum	Punica granatum	cephalum.
Elæocarpus cyaneus		

## SOME PLANTS FOR DRY PLACES, POOR SOIL AND BANKS

### HARDY ANNUALS

Alyssum maritimum	Iberis (Candytuft)	Papaver (Poppy)
Convolvulus	Linaria (various)	Tropæolum majus and T.
Eschscholzia californica	Linum grandiflorum	minus (Nasturtium)

### HALF-HARDY ANNUALS

Tagetes patula (French Marigold)	Tropæolum aduncum (Canary Creeper)
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### BIENNIALS

Althæa rosea (Hollyhock)	Cynoglossum (Hound's Tongue)	Myosotis (Forget-me- not)
Antirrhinum (Snap- dragon)	Digitalis (Foxglove)	Wallflower
Cheiranthus allionii (Wallflower)	Hollyhock (Althæa rosea)	(Cheiranthus allionii)

### PERENNIALS

Achillea Lewisii	Dianthus (Pinks)	Linaria dalmatica, etc.
Achillea Millefolium, etc.	Dicentra (various)	Linum hirsutum
Alstrœmeria aurantiaca	Dictamnus	Lupinus
Alyssum saxatile	Erigeron	Lychnis
Anthemis tinctoria	Erodium (Heron's Bill)	Pinks (Dianthus)
Armeria cæspitosa & A. maritima	Eryngium (Sea Holly)	Papaver orientale
Aubrietia	Geum	(Poppy, Oriental)
Campanula (various)	Horminium pyrenaicum	Saponaria officinalis, etc.
Cheiranthus	Iberis (Candytuft)	Sedum (Stonecrop)
(Wallflower)	Kentranthus (Valerian)	Statice
Convolvulus	Kniphofia (Red Hot Poker)	Verbascum (Mullein)
Corydalis		Wallflower (Cheiranthus)

### ROCK GARDEN

Achillea rupestris, etc.	Helianthemum (Rock Rose)	Saponaria ocymoides, etc.
Armeria (Thrift)	Iberis (Candytuft)	Sedum (Light)
Aubrietia (Rich, Sandy Loam)	Linaria (Light, Sandy)	Sempervivum (Sandy Loam)
Cheiranthus (Wallflower)	Linum (Light, Gritty)	Waldsteinia trifolia
Gypsophila repens, etc.	Lithospermum	Wallflower (Cheiranthus)
	Onosma albo roseum, etc.	

### SHRUBS AND TREES

Amorpha	Hippophaë rhamnoides	Rubus (various)
Atriplex Halimus	Hypericum calycinum	Santolina Chamæcypar- issus (Lavender Cotton)
Berberis Thunbergii	Juniperus communis & Sabina	Senecio (various)
Calluna vulgaris vars.	Lavandula spica	Spartium junceum
Caragana arborescens	Lycium chinensis	(Spanish Broom)
Cistus (various) Rock Rose	Mahonia Aquifolium	Spiræa salicifolia
Clematis Flammula and C. Vitalba	Olearia Haastii	Teucrium fruticans
Colutea arborescens	Phlomis fruticosa	Ulex europæus fl. pl.
Cotoneaster microphylla	Pinus montana	Ulex Galli (Furze)
Cytisus (Broom)	Rhus Cotinus	Veronica (New Zealand vars.)
Genista (Broom)	Rosa rugosa, R. spinosis- sima, and R. Wichur- aiana	Yucca (various).
Hedera Helix (Ivy)		
Helianthemum (SunRose)		

## PLANTS FOR DRY PLACES, POOR SOIL AND BANKS

### BULBS AND TUBERS

*Fritillaria* (except *F. Meleagris*)      *Ixia* (African Corn Lily)  
(Rich, Deep, Moist Sandy Loam)

## SOME PLANTS FOR A MOIST SOIL

See also *Plants for the Marsh Garden*, page 114.

### ANNUALS

<i>Clarkia elegans</i>	<i>Lobelia</i>	<i>Erinus</i> (Half-hardy)	<i>Phlox Drummondii</i>
<i>Coreopsis bicolor nana</i>	<i>Mimulus</i> (Musk)	Half-hardy	<i>Senecio elegans</i>

### BIENNIALS AND PERENNIALS

<i>Acorus calamus</i>	<i>Helonias bullata</i>	<i>Polygonatum multiflorum</i>
<i>Anagallis tenella</i>	<i>Hemerocallis</i> (Day Lily)	<i>Primula chionantha</i> , <i>P. florindæ</i> and <i>P. helodoxa</i> , etc. (Rich Loam)
<i>Anemones</i> (Light, Rich, Loam)	<i>Hosta</i> (Funkia)	<i>Ranunculus aconitifolius</i>
<i>Aquilegia</i> (Columbine)	<i>Iris</i> (Bearded and Japanese)	<i>Saxifraga aquatica</i> , <i>S. diversifolia</i> and <i>S. retrusa</i>
<i>Astilbe Granat</i> , <i>Pink Pearl</i> , etc.	<i>Lathyrus latifolius</i> (Everlasting Pea)	<i>Senecio</i> (various)
<i>Boltonia</i> (False Starwort)	<i>Lilium pardalinum</i> & <i>L. superbum</i>	<i>Sidalcea Rosy Gem</i> , <i>S. candida</i> , etc.
<i>Caltha palustris</i> fl. pl.	<i>Lobelia cardinalis</i> , etc. (Rich)	<i>Sisyrinchium grandiflorum</i>
<i>Cardamine pratensis</i>	<i>Lythrum virgatum</i> <i>Rose Queen</i> , etc.	<i>Spiræa</i> (various)
<i>Chelone</i>	<i>Mimulus</i> [Musk] (Rich)	<i>Thalictrum</i> (Meadow Rue)
<i>Cimicifuga</i>	<i>Osmunda regalis</i> (Royal Fern)	<i>Trillium</i> (Wood Lily)
<i>Coreopsis</i> (various)	<i>Parnassia palustris</i> (Grass of Parnassus)	<i>Trollius asiaticus</i>
<i>Cypripedium spectabile</i>	<i>Petasites fragrans</i>	<i>Xerophyllum asphodeloides</i>
<i>Dodecatheon</i>	<i>Phlox paniculata</i>	
<i>Epilobium</i>	<i>Phormium tenax</i>	
<i>Eranthis</i> (Winter Aconite)	<i>Pinguicula vulgaris</i>	
<i>Geum rivale</i>		
<i>Gunnera scabra</i> , etc.		
<i>Helleborus niger</i> (Christmas Rose), etc.		

### ROCK GARDEN

<i>Androsace lanuginosa</i> , etc.	<i>Iris</i> (Dwarf Bearded, etc.)	<i>Ourisia coccinea</i> , etc.
<i>Anemones</i> (various)	<i>Lysimachia Nummularia aurea</i>	<i>Phlox</i> (Rich Loam)
<i>Arenaria</i> (Sandy Loam)	<i>Mertensia primuloides</i>	<i>Primulas</i> (Rich Loam)
<i>Dodecatheon</i> (Rich, Deep Loam)	<i>Nierembergia rivularis</i> (Loam)	<i>Ranunculus</i> (Sandy Loam)
<i>Gentiana</i> (Most vars.)	<i>Omphalodes Luciliæ</i>	<i>Soldanella alpina</i> (Gritty Loam)
<i>Haberlea</i> (Sandy Peat)		

### BULBS AND TUBERS

<i>Anemones</i> (Tuberous) Light Loam	<i>Galanthus</i> (Snowdrop) Gritty Loam	<i>Leucojum æstivum</i>
<i>Eranthis</i> (Winter Aconite) Sandy Loam	<i>Iris</i> , Dwarf Bearded and Japanese	<i>Narcissus</i> (Sandy Loam)
<i>Fritillaria Meleagris</i> Sandy Loam		<i>Ranunculus</i> (various)
		<i>Schizostylis coccinea</i>
		<i>Trillium grandiflorum</i>

## PLANTS FOR DIFFERENT SOILS

### SOME PLANTS FOR A MOIST SOIL (continued)

#### SHRUBS AND TREES

<i>Abies nobilis</i>	<i>Cornus alba</i> , <i>C. Spathii</i>	<i>Polygala Chamaebuxus</i>
<i>Abies pectinata</i> (Silver Fir)	and <i>C. sanguinea</i> (Dogwood)	<i>Populus</i> (Poplar)
<i>Acer dasycarpum</i>	<i>Cortaderia argentea</i> (Pampas Grass)	<i>Pterocarya caucasica</i>
<i>Alnus cordifolia</i> , <i>A.</i> <i>glutinosa laciniata</i>	<i>Crataegus</i> (Thorn)	<i>Rubus laciniatus</i>
<i>Andromeda</i> (Marsh Rosemary)	<i>Cyperus alternifolius</i>	<i>Salix</i> (Willow)
<i>Arundinaria</i> (Bamboos)	<i>Diervilla</i> (Weigela)	<i>Sambucus</i> (Elder)
<i>Arundo Donax</i> (Great Reed)	<i>Hippophae rhamnoides</i>	<i>Spiraea aruncus</i>
<i>Bambusa</i> (Bamboo)	<i>Leycesteria formosa</i>	<i>Taxodium distichum</i>
<i>Betula alba</i> (Birch)	<i>Myrica</i> (syn. <i>Comptonia</i> ) <i>asplenifolia</i>	<i>Thuja occidentalis</i> , <i>T.</i> <i>orientalis</i> , etc.
<i>Cassandra calyculata</i>	<i>Myrica Gale</i> (Sweet Gale)	<i>Tsuga Albertiana</i>
<i>Catalpa</i>	<i>Nyssa sylvatica</i>	<i>Vaccinium</i>
	<i>Phyllostachys</i> (Bamboo)	<i>Viburnum Opulus</i>
	<i>Picea sitchensis</i>	<i>Xanthorrhiza</i>
		<i>Zenobia speciosa</i>

### SOME PLANTS FOR SANDY AND GRAVELLY SOILS

#### HARDY ANNUALS

<i>Alyssum maritimum</i>	<i>Godetia</i> (Rich Loam)	<i>Linaria</i> (Light, Dry)
<i>Coreopsis bicolor nana</i> , etc. (Moist Loam)	<i>Iberis</i> [Candytuft] (Dry Loam)	<i>Papaver</i> (Poppy)
		<i>Salvia</i>

#### HALF-HARDY ANNUALS

<i>Ageratum mexicanum</i>	<i>Matthiola annua</i>	<i>Stock</i> , Ten-weeks' [ <i>Mat-</i> <i>thiola annua</i> ] (Rich
<i>Celosia</i> [Prince of Wales' Feathers] (Rich)	(Ten-Weeks' Stock)	Loam)
<i>Limonium sinuata</i> , etc.	<i>Portulaca grandiflora</i>	<i>Verbena</i> (Rich Loam)
	<i>Statice</i> [Limonium] (Loam)	

#### BIENNIALS

<i>Campanula Medium</i> [Canterbury Bells] (Light Loam)	<i>Erysimum</i> (Fairy Wall- flower) Loam	<i>Stocks</i> (Giant or Brompton) Light
<i>Campanula pyramidalis</i>	<i>Oenothera</i> (Evening Primrose)	<i>Trachelium cæruleum</i>
<i>Cheiranthus</i> (Wallflower)	<i>Scabiosa caucasica</i>	<i>Wallflower</i> [ <i>Cheiranthus</i> ] (Loam)
<i>Coreopsis grandiflora</i> (Moist Loam)	<i>Silene compacta</i> (Loam)	

#### PERENNIALS

<i>Alstroemeria aurantiaca</i> (Rich, Light)	<i>Chelone</i> (Shellflower) Moist Loam	<i>Linaria dalmatica</i> , etc. (Light)
<i>Alyssum saxatile</i>	<i>Coreopsis</i> (Moist Loam)	<i>Lythrum</i> (Moist, Rich)
<i>Anthemis tinctoria</i> (Loam)	<i>Erodium</i> (Heron's Bill) Loam	<i>Oenothera</i> [Evening Primrose] (Rich)
<i>Asphodelus</i> [various] (Rich Loam)	<i>Eryngium</i> (Sea Holly)	<i>Pentstemons</i> (Loam)
<i>Aubrietia</i> (Dry, Rich Loam)	<i>Hypericum</i> (Loam)	<i>Physostegia</i> (Rich)
<i>Campanula</i> [various] Light Loam	<i>Iberis sempervirens</i> (Candytuft)	<i>Potentilla</i> (Cinquefoil)
	<i>Irises</i> (most vars.) Loam	<i>Saxifraga</i> [various] (Gritty Loam)
	<i>Kniphofia</i> (Red Hot Poker)	



## PLANTS FOR SANDY AND GRAVELLY SOILS

### ROCK PLANTS

<i>Acæna</i> (various)	<i>Erysimum</i> (Loam)	<i>Ourisia coccinea</i> (Moist Loam)
<i>Alyssum saxatile</i> , etc.	<i>Helianthemum</i> (Rock Rose)	<i>Potentilla</i> (various)
<i>Arabis albida</i> fl. pl., etc.	<i>Hypericum</i> (Loam)	<i>Saxifraga</i> [various] (Loam)
<i>Arenaria</i> (Moist Loam)	<i>Iberis</i> (Candytuft)	<i>Sempervivum</i> (Loam)
<i>Aubrietia</i> (Dry, Rich Loam)	<i>Linaria</i> (Light)	<i>Silene</i> [various] (Loam)
<i>Campanula</i> [various] (Light Loam)	<i>Omphalodes Luciliae</i> , etc. (Moist Loam)	<i>Thymus</i> [various] (Loam)
<i>Erodium</i> (Loam)		

### BULBS AND TUBERS

<i>Agapanthus</i>	<i>Ixiolirion montanum</i>
<i>Antholyza paniculata</i>	<i>Lapeyrousia</i>
• (African Corn Flag)	<i>Lilium</i> (various)
<i>Brodiaea</i> (various)	<i>Lily-of-the-Valley</i> (see <i>Convallaria</i> )
<i>Bulbocodium vernum</i> , etc. (Spring Meadow Saffron)	<i>Montbretia</i>
<i>Calochortus pulchellus</i> , etc.	<i>Narcissus</i>
<i>Chionodoxa</i>	<i>Oxalis</i>
<i>Convallaria majalis</i> (Lily-of-the Valley)	<i>Phædranassa chloracra</i>
<i>Eranthis</i> (Winter Aconite)	<i>Polianthes tuberosa</i>
<i>Fritillaria</i>	<i>Puschkinia scilloides</i>
<i>Hyacinthus</i>	<i>Sparaxis</i>
<i>Iris</i> (various)	<i>Sternbergia</i>
<i>Ixia</i> (African Corn Lily)	<i>Tigridia</i>
	<i>Tulips</i>
	<i>Winter Aconite</i> (See <i>Eranthis</i> )

### SHRUBS AND TREES

<i>Acer</i> (Maple) various	<i>Juniperus</i> (Juniper)
<i>Amelanchier</i> (various)	<i>Lavandula</i> (Lavender)
<i>Berberis</i> (Barberry) various	<i>Ling</i> (See <i>Calluna</i> )
<i>Betula</i> (Birch)	<i>Osmanthus Aquifolium</i>
<i>Broom</i> (See <i>Cytisus</i> and <i>Genista</i> )	<i>Prunus Amygdalus</i> (Almond)
<i>Calluna vulgaris</i> (Ling)	„ <i>Cerasus</i> (Cherry) and <i>Padus</i> (European Bird Cherry)
<i>Cistus</i> (various)	<i>Quercus Ilex</i> (Evergreen Oak)
<i>Colutea arborescens</i>	<i>Robinia</i> (False Acacia)
<i>Cratægus</i> (Thorn)	<i>Rosmarinus officinalis</i> (Rosemary)
<i>Cydonia</i> (Quince)	<i>Rubus ulmifolius</i> fl. pl.
<i>Cytisus</i> (Broom)	<i>Spartium junceum</i>
<i>Erica</i> (Heath)	<i>Tamarix</i> (Tamarisk)
<i>Fagus sylvatica</i> (Beech)	<i>Thorn</i> (See <i>Cratægus</i> )
<i>Gaultheria Shallon</i>	<i>Ulex</i> (Gorse)
<i>Genista</i> (Broom)	<i>Ulmus</i> (Elm)
<i>Heath</i> (See <i>Erica</i> )	
<i>Helianthemum</i> (Sun Rose)	

## PLANTS FOR CHALKY SOIL

### ANNUALS

<i>Centaurea suaveolens</i> (Sweet Sultan)	<i>Reseda odorata</i> (Mignonette)
<i>Dianthus chinensis</i> and var. <i>Heddewigii</i> (Half-hardy)	<i>Sweet Sultan</i> ( <i>Centaurea suaveolens</i> )
<i>Gypsophila elegans</i>	<i>Stock</i> (Ten-week) Rich, Sandy loam with lime
<i>Papaver</i> (Poppies)	

## PLANTS FOR CHALKY SOIL

### BIENNIALS AND PERENNIALS

Bocconia (syn. Macleaya)	Kentranthus or Gentranthus
Cheiranthus (Wallflower)	(Valerian)
Dianthus Caryophyllus (Carnations)	Pæonia (Pæony)
Delphiniums	Papaver orientale (Oriental Poppy)
Doronicum (Leopard's Bane)	Pyrethrum
Geum	Sedum (Stonecrop)
Gypsophila paniculata, etc.	Wallflowers (Cheiranthus)
Iberis (Candytuft)	

### ROCK PLANTS

Achillea rupestris, etc.	Helianthemum (Sun Rose)
Æthionema	Iberis (Candytuft)
Cheiranthus (Wallflower)	Saxifraga (Kabschia)
Dianthus alpinus	Sedum (Stonecrop)
Dryas (Mountain Avens)	Wahlenbergia serpyllifolia
Geum	Wallflower (Cheiranthus)
Gypsophila repens, etc.	

### SHRUBS AND TREES

Abies cephalonica (Grecian Silver Fir)	Hypericum [various] (St. John's Wort)
„ cilicica (Cilician Fir)	Ilex Aquifolium (Holly)
„ Pinsapo (Spanish Fir)	Juglans regia (Walnut)
Acacia (various)	Juniperus [various] (Juniper)
Acer [various] (Maple)	Laburnum (various)
Æsculus [various] (Chestnut)	Larix europæa (Larch)
Aucuba japonica	Ligustrum [various] (Privet)
Berberis (various)	Olearia Haastii, etc.
Betula [various] (Birch)	Philadelphus [various] (Mock Orange)
Buddleia variabilis	Picea grandis, etc.
Buxus sempervirens (Box)	Pinus Laricio and var. nigricans
Calycanthus floridus	Populus [various] (Poplar)
Ceanothus (various)	Prunus (Almond, Cherry, Peach, Plum, etc.)
Cedrus [various] (Cedar)	Prunus Laurocerasus (Cherry Laurel), etc.
Cistus [various] (Rock Rose)	Pyrus (Mountain Ash and Crab)
Cornus [various] (Dogwood)	Rhamnus cathartica
Cotoneaster (various)	Rhododendron rubiginosum, R. rupicola, etc.
Cratægus [various] (Thorn)	Ribes (Flowering Currant)
Cupressus Lawsoniana and macrocarpa	Robinia (various)
Cydonia japonica (Japanese Quince)	Rubus [various] (Bramble)
Daphne cneorum	Spiræa (various)
Deutzia crenata fl. pl. and D. gracilis	Syringa [various] (Lilac)
Diervilla [various] (Weigela)	Taxus baccata (Yew)
Erica carnea and E. mediterranea	Thuja (arborvitæ)
Euonymus (some vars.)	Ulmus (Elm)
Fagus sylvatica vars. (Beech)	Veronica (various)
Forsythia suspensa, etc.	Yucca (various)
Garrya elliptica	
Helianthemum [various] (Sun Rose)	

### CLIMBERS

Clematis (some vars.)	Jasminum (Jasmine)
Escallonia (some vars.)	Lonicera (Honeysuckle)
Hedera [Ivy] (most vars.)	Pyracantha (Red-berried vars.)

## SOME PLANTS FOR LIGHT SOIL

### HARDY ANNUALS

<i>Alyssum maritimum</i>	<i>Linum grandiflorum</i>
<i>Centaurea suaveolens</i> (Sweet Sultan)	<i>Malcomia</i> (Virginian Stock)
<i>Eschscholzia californica</i>	<i>Senecio elegans</i>
<i>Iberis</i> (Candytuft)	<i>Silene pendula compacta</i>
<i>Linaria</i>	

### HALF-HARDY ANNUALS

<i>Amarantus caudatus</i>	<i>Helipterum</i>
<i>Anagallis</i> (Pimpernel)	<i>Ipomoea</i> (various)
<i>Brachycome</i>	<i>Lychnis</i> ( <i>Agrostemma</i> )
China Asters	<i>Petunias</i> (Moderately Rich)
<i>Dimorphotheca aurantiaca</i>	<i>Scabiosa atropurpurea</i>
<i>Gaillardia picta</i> , etc.	<i>Zinnia elegans</i>
<i>Heliotropium</i> (Cherry Pie)	

### BIENNIALS

<i>Campanula Medium</i> (Canterbury Bells)	<i>Matthiola</i> (Stock, Giant or Brompton)
„ <i>pyramidalis</i>	<i>Scabiosa caucasica</i>
<i>Dianthus barbatus</i> (Sweet William)	Stock (Giant or Brompton)
<i>Lychnis Flos-jovis</i>	Sweet William ( <i>Dianthus Barbatus</i> )
	<i>Verbascum</i> (Mullein)

### PERENNIALS

<i>Acanthus longifolius</i> , etc.	<i>Kniphofia</i>
<i>Achillea Millefolium</i> , etc.	<i>Lavatera</i> (Mallow)
<i>Alstroemeria aurantiaca</i>	<i>Linaria dalmatica</i> , etc.
<i>Alyssum saxatile</i>	<i>Linum</i>
<i>Anchusa</i>	<i>Lupins</i> (various)
<i>Anemones</i>	<i>Lychnis</i>
<i>Bocconia</i> (syn. <i>Macleaya</i> )	<i>Malva moschata</i> (Musk Mallow)
<i>Campanula</i> (various)	<i>Marina</i>
<i>Catananche Delphinium</i>	<i>Papaver orientalis</i> (Oriental Poppy)
<i>Dicentra Cucullaria</i> , etc.	<i>Phlomis</i>
<i>Dictamnus</i> (Burning Bush)	<i>Physalis</i>
<i>Echinacea purpurea</i> , etc.	<i>Platycodon</i>
<i>Echinops Ritro</i>	<i>Pyrethrum</i> (moderately rich)
<i>Eryngium</i>	<i>Salvia uliginosa</i> , <i>S. turkestanica</i>
<i>Euphorbia Wulfenii</i>	<i>S. virgato nemorosa</i>
<i>Gaillardia</i>	<i>Saponaria officinalis</i> , etc.
<i>Gaura</i>	<i>Scabiosa caucasica</i> , etc.
<i>Geranium</i> (various)	<i>Sedum</i> (Stonecrop)
<i>Geum Mrs. Bradshaw</i> , etc.	<i>Senecio</i> (various)
<i>Helleborus niger</i> (Christmas Rose)	<i>Sidalcea</i>
<i>Hemerocallis aurantiaca</i>	<i>Statice</i>
<i>Heuchera sanguinea</i> , etc.	<i>Stokesia cyanea</i> , etc.
<i>Iberis</i> (Candytuft)	<i>Thalictrum</i>
<i>Irises</i> (various)	<i>Verbascum</i> (Mullein)

### ROCK PLANTS

<i>Acæna</i> (various)	<i>Linum</i>
<i>Achillea tomentosa</i> , etc.	<i>Nepeta</i> (Catmint)
<i>Campanula carpatia</i> , etc.	<i>Pulmonaria</i>
<i>Geum</i>	<i>Saponaria</i>
<i>Heuchera sanguinea</i>	<i>Sedum</i> (Stonecrop)
<i>Linaria</i>	

## SOME PLANTS FOR LIGHT SOIL

### BULBS AND TUBERS

Allium (various)	Lapeyrousia
Alstroemeria aurantiaca	Mirabilis (various)
Anemones	Oxalis
Crocus (various)	Pancratium illyricum
Erythronium (Dog's Tooth Violet)	Paradisia Liliastrum
Freesia (various)	Schizostylis coccinea
Iris (various)	Tigridia

### SHRUBS AND TREES

Berberis (Barberry)	Ilex (Holly)
Buddleia	Juniperus (Juniper)
Ceanothus	Lavandula (Lavender)
Cistus (Rock Rose)	Olearia Haastii
Cotoneaster	Romneya Coulteri
Cytisus (Broom)	Rosmarinus officinalis (Rosemary)
Erica (Heath)	Senecio Greyii (Ragwort)
Helianthemum (Sun Rose)	Pinus (Pine)

## SOME PLANTS FOR A LOAMY SOIL

### HARDY ANNUALS

Delphinium Gayanum syn. Ajacis	Iberis (Candytuft) Dry, Sandy
Godetia (Rich, Sandy)	Senecio elegans (Moist, Light)
Gypsophila elegans (Chalky)	Silene pendula compacta (Light)

### HALF-HARDY ANNUALS

Celosia plumosa (Prince of Wales' Feathers) Rich, Sandy	Matthiola annua (Ten-weeks' Stock)
Helichrysum bracteatum, etc. (Gritty)	Pansies (Mod. Rich)
Heliotropium (Cherry Pie) Light	Statice (Limonium) Sandy
Lychnis (Agrostemma) Rich, Light	Stocks, Ten-weeks' (see Matthiola)
	Verbena (Rich, Sandy)
	Viola (Mod. Rich)

### BIENNIALS

Althæa rosea (Hollyhock) Rich	Hollyhock (see Althæa)
Antirrhinums (Dry, Rich)	Matthiola (see Stock)
Campanula Medium (Canterbury Bells) Light, Sandy	Oenothera (Evening Primrose) Rich
Coreopsis grandiflora (Moist, Sandy)	Silene compacta (Sandy)
Erysimum (Fairy Wallflower) Sandy	Stocks, Intermediate & East Lothian
	Wallflower (see Cheiranthus).

### PERENNIALS

Anemones (Moist, Light, Rich)	Campanula (various) Light, Sandy
Anthemis tinctoria (Sandy)	Carnations (Dianthus Caryophyllus)
Aquilegia (Columbine) Moist	Chelone (Shellflower) Moist, Sandy
Armeria maritima, etc. (Thrift)	Cimicifuga
Asphodel (various) Rich, Sandy	Coreopsis (Moist, Sandy)
Astilbe (Moist)	Delphinium (Rich)
Aubrietia (Dry, Rich, Sandy)	Dianthus Caryophyllus (Carnation)
Auriculas (Rather Heavy)	Dodecatheon (Rich)
Boltonia (False Starwort) Moist	Echinacea purpurea (Light)
Buphthalmum (Ox-eye)	Echinops Ritro

## SOME PLANTS FOR LOAMY SOIL

### PERENNIALS (continued)

Eremurus Bungei, etc. (Rich)	Pentstemons (Sandy, Rich)
Erodium (Meron's Bill) Sandy	Polemonium coeruleum, etc.
Gypsophila paniculata, etc. (Limed)	Primulas (Rich and Moist)
Hypericum (various) Sandy	Saponaria (Dry, Light, Gritty)
Iberis (Candytuft)	Saxifraga (various) Gritty and Sandy
Incarvillea Delavayi (Rich)	Senecio (various) Moist, Light
Irises (most vars.) Sandy	Sidalcea Rosy Gem, etc. (Moist)
Lychnis (Rich, Light)	Spiræas (Moist)
Pæonia (Peony) Rich	Trollius asiaticus (Moist)
Pansies	Viola

### ROCK PLANTS

Anthyllis montana, etc.	Omphalodes Luciliæ (Moist, Sandy)
Aquilegia glandulosa (Columbine)	Oxalis adenophylla (Gritty)
Arabis albida fl. pl., etc. (Sandy)	Pansies (Rich)
Arenaria (Moist, Sandy)	Papaver alpinum (Gritty)
Armeria (Dry, Deep)	Phlox (Moist, Rich)
Aubrietia (Dry, Rich, Sandy)	Primulas (various) Deep, Rich
Campanula (various) Light, Sandy	Pulmonaria (various) Light, Rich
Dodecatheon (Moist, Rich, Deep)	Ranunculus (Moist, Sandy)
Draba (Gritty)	Saponaria (Dry, Light, Gritty)
Dryas (Gritty with Lime)	Saxifraga (various) Sandy
Erodium (Sandy)	Silene (various) Sandy
Erysimum (Sandy)	Soldanella alpina (Moist, Gritty)
Hypericum (St. John's Wort) Sandy	Thymus (Sandy)
Iberis (Candytuft) Sandy	Viola (Rich)
Lychnis (Gritty)	Wahlenbergia (Gritty, Limed)
Meconopsis (Gritty)	Zauschneria californica splendens

### BULBS AND TUBERS

Agapanthus (Rich, Sandy)	Ixiolirion montanum (Sandy)
Allium (various)	Lapeyrousia (Light, Sandy)
Anemones (Moist, Light)	Lilium (various) Moist, Sandy
Antholyza paniculata (Sandy)	Mirabilis (Light, Rich)
Begonias (Tuberous) Rich	Montbretia
Chionodoxa (Sandy)	Muscari (Grape Hyacinth)
Eranthis (Winter Aconite) Moist	Narcissus (Moist, Sandy)
Fritillaria (Rich, Deep, Sandy)	Pancratium illyricum (Light, Rich)
Galanthus (Snowdrop) Moist, Gritty	Phædranassa chloracra (Sandy)
Gladiolus	Polianthes tuberosa (Rich, Sandy)
Hyacinthus (Sandy)	Tigridia (Light, Rich, Sandy)
Iris (various) Rich, Light, Sandy	Tulips (Moist, Sandy)
Ixia (African Corn Lily) Rich, Sandy	Zephyranthes (Zephyr Flower) Peaty

### SHRUBS AND TREES

Abies (Fir)	Buddleia (various)	Fagus (Beech)
Acanthopanax	Carpinus Betulus	Fatsia japonica
Acer (Maple)	Cedrus (Cedar)	Fraxinus (Ash)
Adenocarpus decorticans	Catalpa bignonioides	Ginkgo biloba
Æsculus (Chestnut)	Colutea arborescens	Hamamelis (WitchHazel)
Arundinaria (Bamboo)	Cotoneaster (various)	Hydrangea paniculata
Berberis (Barberry)	Cupressus (Cypress)	Hypericum (various)
Betula (Birch)	Exochorda (various)	Juglans regia (Walnut)

## SOME PLANTS FOR RICH SOIL

### SHRUBS AND TREES (continued)

Ilex Aquifolium (Holly)	Phyllostachys (Bamboo)	Pyrus (Crab, Sorbus, etc.)
Larix (Larch)	Picea (Spruce)	Rosa (various)
Laurus nobilis (Sweet Bay)	Platanus acerifolia (London Plane)	Schizandra
Liriodendron Tulipifera	Populus (Popular)	Sequoia
Lonicera (Honeysuckle)	Potentilla fruticosa	Spiraea (various)
Mahonia	Pyracantha (Fire Bush), etc.	Syringa (Lilac)
Magnolia (Lily Tree)	Quercus (Oak)	Thuya (Arbor vitæ)
Mespilus germanica	Prunus (Cherry, Peach, Plum, etc.)	Tilia (Lime)
Osmanthus Aquifolium		Ulmus (Elm)
Philadelphus (Mock Orange)		Viburnum.

## PLANTS FOR A RICH SOIL

### HARDY ANNUALS

Clarkia elegans (moist)	Lupinus [Lupin] light (no lime)
Delphinium Gayanum, syn, Ajacis	Matthiola bicornis
Godetia (sandy, loam)	Papaver Rhœas (Shirley Poppy)
Helianthus (Sunflower)	Reseda odorata (Mignonette)
Lathyrus odoratus (Sweet Pea)	Salvia Horminum

### HALF-HARDY ANNUALS

Balsam	Nicotiana (Tobacco Plant)
Brachycome (Light)	Pansies
Celosia [Prince of Wales' Feathers]	Petunias (Moderately Rich, Light)
China Aster (Light)	Phlox Drummondii (Deep, Moist)
Gaillardia picta, etc.	Salpiglossis sinuata
Heliotropium (Cherry Pie)	Scabiosa atropurpurea (Light)
Helipterum (Light)	Stock, Ten-weeks', see Matthiola
Ipomœa (Light)	Tagetes erecta (African Marigold)
Lychnis [Agrostemma] (Light Loam)	Verbena (Sandy Loam)
Matthiola annua (Ten-weeks' Stock)	Violas (Moderately Rich Loam)
Mimulus (Moist)	Zinnia elegans (Light)

### BIENNIALS

Althæa rosea [Hollyhock] (Loam)	Lunaria annua (Honesty)
Anchusa capensis (Medium)	Lychnis Flos-jovis
Antirrhinum (Dry Loam)	Papaver nudicaule (Iceland Poppy)
Foxgloves (Digitalis)	Scabiosa caucasica (Light)

### PERENNIALS

Alstroemeria aurantiaca	Irises [various] (Light)
Anchusa Morning Glory, etc.	Lobelia cardinalis, etc. (Moist)
Anemones (Moist, Light Loam)	Lupinus [Lupin] various (Light)
Asphodelus [various] (Sandy Loam)	Lychnis [various] (Light)
Aubrietia (Dry, Sandy Loam)	Lythrum (Moist, Sandy)
Bellis perennis [Daisy] (Mod. Rich)	Mimulus moschatus, etc. (Moist)
Bocconia [syn. Macleaya] (Light)	Oenothera Evening Primrose (Sandy)
Delphinium [various] (Loam)	Pæonia (Loam)
Dodecatheon (American Cowslip)	Pansies
Eremurus Bungei, etc. (Loam)	Papaver (Poppy)
Gaura (Light)	Phlox paniculata, etc. (Moist)
Geum [various] (Light)	Physalis (Light)
Helanium autumnale, etc.	Pyrethrum (Mod. Rich and Light)
Helianthus	Salvia (Ordinary)
Heuchera sanguinea	Scabiosa caucasica, etc. (Light)
Hosta (Funkia)	Spiræas (Moist Loam)
Incarvillea Delavayi, etc. (Loam)	Viola

## PLANTS FOR A RICH SOIL

### ROCK PLANTS

Aubrietia (Dry, Sandy Loam)	Pansies (Rich)
Dodecatheon (Moist, Deep Loam)	Phlox (Moist Loam)
Geum (Light)	Pulmonaria [various] (Light Loam)
Heuchera sanguinea (Light)	Viola (Loam)

### BULBS AND TUBERS

Agapanthus (Sandy Loam)	* Ixia [African Corn Lily] (Sandy)
Alstroemeria aurantiaca (Light)	Polianthes tuberosa (Sandy Loam)
Amaryllis Belladonna (Loamy)	Puschkinia scilloides (Sandy)
Begonia (Loam)	Schizostylis coccinea (Moist, Light)
Fritillaria (Deep, Sandy Loam)	Tigridia (Light, Sandy Loam)
Iris [various] (Light, Sandy Loam)	

## SOME PLANTS FOR PEATY SOIL

### ROCK PLANTS

Adonis vernalis	Haberlea
Claytonia	Mertensia primuloides
Cyananthus	Onosma albo roseum, etc.
Cypripedium spectabile	Primula Beesiana, *P. Bulleyana,
Epimedium alpinum, etc.	P. japonica, etc.
Ferns (various)	Ramondia pyrenaica
Gentiana (various)	Soldanella alpina, etc.

### BULBS AND TUBERS

*Cyclamen ibericum, etc.	Pancratium illyricum
Iris (various)	Trillium grandiflorum
Lilium auratum, L. giganteum, L.	Zephyranthes
pardalinum, etc.	

### SHRUBS AND TREES

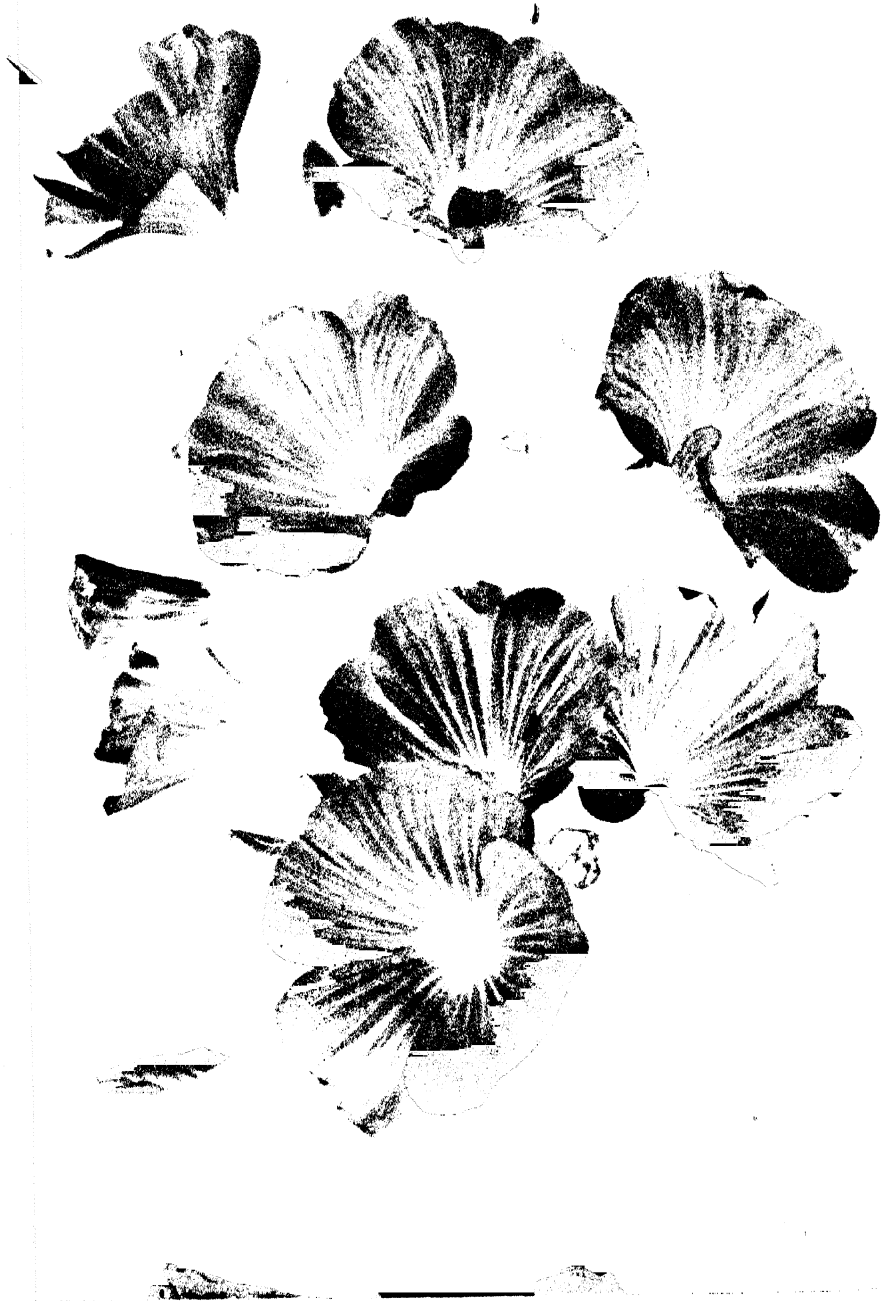
Abies nobilis	Kalmia (various)
Andromeda (various)	Laurus nobilis (Sweet Bay)
Arbutus (various)	Ledum latifolium, etc.
Azaleas (various)	Leiophyllum buxifolium
Bruckenthalia spiculifolia	Leucothoe
Bryanthus Brewerii, etc.	Lithospermum
Calluna vulgaris, etc.	*Magnolia (various)
Cassandra calyculata	Myrica cerifera
Cassiope tetragona	Oxydendrum arboreum
Cassinia fulvida	*Pernettya mucronata
Comptonia asplenifolia	Phyllodoce cœrulea and P. empetri-
Cornus canadensis	formis
Daboecia polifolia	Pieris floribunda
Daphne (various)	Polygala chamæbuxus
Empetrum nigrum	*Rhododendron (various)
*Enkianthus campanulatus vars. etc.	Rhodothamnus Chamæcistus
*Erica (various)	Rosa alpina, R. ferox, and R. hispida
Erinacea pungens	Skimmia (various)
Galax aphylla [Shallon	Vaccinium pennsylvanicum, V.
Gaultheria procumbens and G.	uliginosum, etc.
Grevillea rosmarinifolia and G.	Zenobia speciosa
sulphurea	

\* Denotes the Royal Horticultural Society's Award of Garden merit.

See also *Plants for the Heath Garden*, page 102.







LAVATERA ROSEA (MALLOW).

[C. Jones.]

# LIME HATERS

## ROCK PLANTS

<i>Achillea ageratifolia</i>	<i>Geum reptans</i>
<i>Adonis vernalis</i>	<i>Haberlea</i>
<i>Androsace lanuginosa</i> , etc.	<i>Hypericum</i> (various)
<i>Asperula suberosa</i>	<i>Lithospermum prostratum</i>
<i>Campanula Allionii</i>	<i>Lychnis alpina</i>
<i>Claytonia</i>	<i>Meconopsis</i>
<i>Conandron ramondiioides</i>	<i>Mertensia primuloides</i> , etc.
<i>Cortusa Matthiola</i>	<i>Onosma albo-roseum</i> , etc.
<i>Cyananthus</i>	<i>Phlox subulata</i>
<i>Cypripedium spectabilis</i>	<i>Primula Beesiana</i> , <i>P. Bulleyana</i> , <i>P. hirsuta</i> , <i>P. integrifolia</i> , <i>P. japonica</i> etc.
<i>Dianthus alpinus</i> , <i>D. cæsius</i> , <i>D. deltoides</i> , <i>D. glacialis</i> , etc.	<i>Sanguinea canadensis</i>
<i>Dodecatheon Media</i> , etc.	<i>Silene</i> (various)
<i>Epimedium alpinum</i> , etc.	<i>Sisyrinchium</i>
Ferns (various)	<i>Soldanella alpina</i> , etc.
<i>Gentiana bavarica</i> , <i>G. hexaphylla</i> , <i>G. Lawrencei</i> , <i>G. pyrenaica</i> , and <i>G. sino-ornata</i>	<i>Valeriana</i>
	<i>Viola pedata</i>

## BULBS AND TUBERS

<i>Cyclamen ibericum</i> , etc.	<i>Pancratium illvricum</i>
<i>Iris</i> (several varieties)	<i>Trillium grandiflorum</i>
<i>Lilium auratum</i> , <i>L. canadensis</i> , <i>L. giganteum</i> , <i>L. pardalinum</i> , etc.	<i>Zephyranthes</i>

## SHRUBS

<i>Andromeda</i> —E.	<i>Erica carnea</i> , etc.—E.
<i>Azaleas</i> —D. and E.	<i>Erinacea pungens</i> —D.
<i>Bruckenthalia spiculifolia</i> —E.	<i>Gaultheria</i> —E.
<i>Bryanthus Brewerii</i> , etc.—E.	<i>Kalmia</i> —E.
<i>Calluna vulgaris</i> , etc.—E.	<i>Ledum latifolium</i> , etc.—E.
<i>Cassandra calyculata</i> —E.	<i>Leiophyllum buxifolium</i> —E.
<i>Cassinia fulvida</i> —E.	<i>Leucothoe</i> —E. and D.
<i>Cassiope tetragona</i> —E.	<i>Lithospermum</i> —E. (Trailing)
<i>Clethra alnifolia</i> —D.	<i>Magnolia</i> —D. and E.
<i>Comptonia</i> (Syn. <i>Myrica</i> ) <i>asplenifolia</i>	<i>Pernettya mucronata</i> —E.
<i>Cornus canadensis</i> —D.	<i>Pieris floribunda</i> —E.
<i>Daboecia polifolia</i> —E.	<i>Polygala Chamæbuxus</i> —E.
<i>Daphne</i> (various)—D. and E.	<i>Rhododendrons</i> —E.
<i>Empetrum nigrum</i> —E.	<i>Rhodothamnus Chamæcistus</i> —E.
<i>Enkianthus campanulatus</i> vars. etc.—D.	<i>Skimmia</i> —E.
<i>Epigæa reptans</i> —E.	<i>Vaccinium pennsylvanicum</i> , <i>V. uliginosum</i> , etc.—D.
	<i>Zenobia speciosa</i> —E.

## TREES

<i>Abies nobilis</i> —E.	<i>Laurus nobilis</i> —E.
<i>Arbutus</i> —E.	<i>Oxydendrum arboreum</i> —D.
E.—Denotes Evergreens.	D.—Denotes Deciduous.

## CARNATION CULTURE

**Under Glass.**—Pot-up the young layers singly into 3-inch pots in a compost of two-thirds turfy loam and one-third well-rotted leaf-mould and coarse sand well sifted and sterilized by baking. This should be done in September or early in October. Then stand the pots in a cold frame for the winter and keep slightly moist. In March, re-pot into 6-inch pots, adding a little well-decayed manure and old mortar rubble to the compost. In May, re-pot into 8-inch pots. Harden-off and then stand in the open in a sheltered position, on a firm bed of ashes or on slates. Water liberally, syringe in dry weather, stake and disbud as advised for those in the open border. When the young plants are some 6 inches high, the heads should be pinched off, and as soon as the side-shoots are from 6 to 8 inches in length they will in turn require pinching back; not later than mid-June, however, for ordinary July-flowering carnations, or mid-August for perpetual-flowering.

**Propagation—Seed.**—Sow 1 inch apart in April or May in seed pans, in a compost of two-thirds loam from decayed turf, one-third well-decomposed cow-dung and a little old mortar rubble and bonemeal, and place in a sheltered part of the garden. When the plants show five or six leaves plant-out from 10 to 15 inches apart. Protect during winter with a cold frame. In cold and heavy soil, some gardeners prefer to sow in August, winter in a cold frame and plant-out in spring.

**Cuttings.**—These may be struck in a frame with a bottom heat of 60° F. from November to February (the best time is January). Choice varieties should be raised from cuttings or layers. **Layering.**—See page 176.

**Tree Carnations.**—These are invaluable for winter blooms. The cultivation and soil are much the same as for the ordinary carnation. The cuttings, which will be furnished by the side-shoots, may be struck in silver sand in February, August or September in gentle heat (55° F.), or the non-flowering shoots of the old plant may be laid down in a cold, shaded frame in August or September. When rooted (about a month), pot-up in 2½-inch pots and winter in a cool greenhouse near the glass and give ample air. The following summer pot-on into 6-inch pots and then into 8-inch pots. Pinch back, stand outdoors, and stake as advised below. About the beginning of September the plants may again be taken into the house and watered occasionally with weak

## CARNATIONS

liquid manure or soot-water as soon as the roots have filled the pots. Seed may be sown in gentle heat (55° F.) in Feb.

**Border Carnations.**—Plant in September or early in October, but in heavy and cold soils it is often wise to keep the young plants in a frame until May and then plant-out. Three weeks before planting the bed (well-drained medium loam) should be double-dug and a little well-rotted stable manure should be dug in 6 inches below the surface. In April the flowering stems should be supported, and as soon as it is apparent that the principal bud is a healthy one, the less important ones should be pulled off. Carnations are perennials, and the beds should only be re-planted every third or fourth year.

**Clove Carnations.**—These are a hardy sweet-scented border type, best planted-out in March or April.

**Malmaison Carnations.**—These require treatment as detailed for border carnations, but only require one 'stopping,' and a cooler atmosphere; the winter temperature should rarely rise above 45° F. They should not be placed in the open in summer. Propagate by layers in a frame in July and August, or by cuttings in a propagating frame with bottom heat in May or June.

## CULTURE OF CHRYSANTHEMUMS

**Outdoor Chrysanthemums.**—Border chrysanthemums should be planted-out in March, or in the case of less hardy sorts, towards the end of May. They should receive the same general treatment as those grown indoors, except that the majority should not be "stopped." A mulch of well-rotted short stable manure in June is beneficial. In planting, 24 to 36 inches should be allowed between each plant, and an open, sunny, sheltered position is essential. Most varieties naturally form bushy plants, but with others it is necessary, from time to time, to pinch-back the tips of the shoots; this pinching-back must not be continued after the end of July. If large blooms are desired the plants should be disbudded. As soon as the flowers are over cut the plants down to the ground, lift them, shake the soil from the roots and place them, close together, in shallow boxes of light, sandy soil and store in a frost-proof place. In March divide the crowns and plant-out again in the border, or take cuttings as advised for the indoor kinds. In light and warm soil it is not always necessary to lift the crowns.

## CHRYSANTHEMUMS

**Indoor Chrysanthemums.—Propagation.**—When the plants have finished blooming the stems should be cut down to within a few inches of the ground and the pots given a position in the cold greenhouse or a frost-proof frame. A half-inch mulch of fine loam and leaf-mould, and a little water will help the old roots to throw up sturdy young shoots for cuttings. See Cuttings, page 179. Grow in pots in a mixture of well-rotted leaf-mould, grit or silver sand and fibrous loam, in about equal parts, and a dusting of wood ashes, all well sieved. Once the cuttings are rooted, stand the pots near the glass. Cuttings of Japanese types must be taken in December or January. Nearly all growers differ as to the best time for striking cuttings of the "Decorative" types; perhaps it is better to strike in February or March. December-struck cuttings should be well rooted by the middle of February and should then be potted up into 3 or 3½-inch pots, adding to the compost one-third part well-rotted manure. They should receive their next shift into 5 or 6-inch pots about the first week in April. Add a little more manure and a dusting of bonemeal and powdered charcoal to the compost, which do not sieve. In about a fortnight's time harden-off, stand out-of-doors by the middle of May, and give a final shift a month or six weeks later.

**Summer Treatment.**—The pots should be stood in the open on slates in a sheltered position, facing south or west. As soon as the pots are full of roots the plants should be placed in 8 to 9-inch pots; about the middle of June is a good time to complete the final potting-up. No soil is better for them than a compost of two-thirds lumpy fibrous loam, one-sixth well-rotted cow-dung, and one-sixth leaf-mould and a little old mortar rubble and sharp sand liberally coloured with bonemeal and soot. Staking and Tying.—See p. 49.

**"Stopping" and Disbudding.**—If bushy plants are to be grown, pinch out the tip of the central shoot, when the plants are some 5 or 6 inches high. A second "stopping" will be necessary in early summer. If you grow blooms for exhibition only, no stopping will be needed until the "break-bud" appears in early summer. Pinch-out this bud and all the young shoots just below it, save the three strongest and best placed, and concentrate the whole strength of the plant into these stems and the strength of these stems into a single bud at the top.

## CHRYSANTHEMUMS—DAHLIAS

**Autumn Treatment.**—From early in August the plants should be fed two or three times a week alternately with sulphate of potash and with weak manure water. Feeding must cease as soon as the blooms are three parts open, and early in October the plants should be moved under glass.

### DAHLIAS

In warm districts the dahlia can be left in the ground all winter if a heap of ashes or sand is placed over the tubers. It is somewhat tender, however, and it is better to lift it as soon as the plants have died down, and to store the tubers for the winter. The ideal soil is a rich, sandy loam containing sufficient humus to make it retentive of moisture.

**Culture.**—The plants may be multiplied by seeds (single varieties) or by dividing the base of the old stem in April, taking care that an "eye" and a tuber or two are attached to each portion. Another way is to cut off the young shoots at their base and strike them in small pots.

**Seed.**—In March sow about 1 inch apart in shallow pans or boxes. The soil should be light and sandy with a mixture of leaf-mould. Place the pans on a warm shelf, and in April pot-off either singly or round the edge of 6-inch pots. Place in a cold frame, gradually harden-off, and plant out 2 to 3 feet apart, early in June.

After flowering, the young bulbs are taken up and treated as old tubers.

**Cuttings.**—In February, March or even the first week in April, tubers which have been wintered in a dry place are placed in shallow boxes containing a slightly moist compost of two-thirds finely sieved loam and one-third leaf-mould and sand, which does not quite cover them and are set over a hot-bed close up to the glass (Temperature 65° F.). A number of strong shoots soon appear; when these are 3 to 4 inches long they are taken off and struck round the edges of 4-inch pots, filled with equal parts of sandy loam and leaf-mould.

The cuttings should be watered, and again placed in the same hot-bed, and shaded from the sun. Pot-up singly as soon as the cuttings have struck (about three weeks) and transfer to a cold frame. Pot-on as required, harden-off, and plant-out early in June.

## DAHLIAS—DELPHINIUMS

The beds should be deeply dug and manured in the autumn. They should be in an open, but sheltered, position and should catch the morning sun, but must have a little shade in the afternoon. Towards the end of May, the soil should be top-dressed with wood ashes which should then be thoroughly raked in. Four to five-foot stakes are firmly fixed at planting time, 3, 4 and 5 feet apart, according to the size of the plants, which are planted 4 inches deep so that the crown is just above the surface. After planting a good watering should be given, and soot sprinkled around. Remove all dead or straggling shoots and keep the plant trim and well staked. A surface mulch of rotted manure, 3 inches deep, will help to keep the roots cool and moist. Early in July, when the plants are 18 inches high, pinch-out the top, and thin-out the stems that form after this, to eight or nine at the most and leave only one bud on a shoot. As the autumn approaches examine the shoots tied-up and slacken the raffia or bass where necessary.

When the frost turns their foliage brown or black it is time to take up the plants and cut off the roots, leaving 6 inches or so of stem attached. Hang the tubers up to dry with the stem downwards for a few days, then plunge them with a little old soil still left on them into a box of ashes, fibre, chaff, or sand, in order to preserve them from damp, frost and heat.

## DELPHINIUMS

The larkspurs comprise a large genus of tall-growing, summer flowering hardy annuals, biennials, and perennials, which like a sunny site and a deep, highly enriched and well-drained friable loam, and need ample water in hot, dry weather. If flower stalks are cut down as soon as they have bloomed, a second crop of bloom will be obtained in early autumn.

All kinds may be raised from seeds sown under glass from March to May, or in July or August, though the annuals and many of the perennials do well if sown in the open and transplanted when large enough. The named varieties must be increased by means of division of the roots in March, April or October, or by means of cuttings of young shoots 3 to 4 inches long struck in spring in a frame.

## GERANIUMS—IRISES

### GERANIUMS

The hardy geraniums like ordinary garden soil, provided it is fairly light and well-drained; a sunny, open site is preferable. The dwarf kinds are suitable for the rock garden, and thrive in ordinary gritty soil. An autumnal dressing of granite chips will help them to survive the winter. Seed should be sown in March or August (under glass) or in April in the open, or the plants may be increased by division from October to March. Cuttings of matured side-shoots can also be struck in August in a frame. For half-hardy greenhouse bedding-plants and show varieties, see *Pelargoniums*, p. 153.

### IRISES

This is a genus of hardy plants that is usually divided into two sections—namely, the bulbous and the non-bulbous or rhizomatous-rooted. The cultivation of irises is simple, the plants succeeding in a sunny position in any light, rich garden soil, though sandy loam with 50 per cent peat or leaf-mould is most suitable for the bulbous species.

**Rhizomatous or Non-bulbous Irises.**—Sow seed in April in a cold frame, or propagate by division in August. Plant-out in August or September; Bearded irises (tall) 20 inches apart; (medium) 15 inches apart; (dwarf) 5 inches apart. The dwarf bearded rock species may be propagated by seed sown in September under glass, by off-shoots in October, or by division in the spring. Lift and re-plant triennially.

**Bulbous-rooted Irises.**—These should be planted 3 to 4 inches deep in September or October, with a little sand round the bulbs (Spanish, 4 inches; Dutch, 5 inches; and English, 6 inches apart). Most spring and autumn-flowering species require to be lifted from the ground in August; summer-flowering kinds should be lifted every third year, in October. English irises should be left undisturbed; the Dutch irises need just the same treatment as the Spanish. **Pot Culture.**—Many of the bulbous irises make good pot plants. They need a compost of two-thirds fibrous loam, one-third leaf-mould and sand; plant five bulbs in a 6-inch pot in September or October. They may be propagated by offsets in September or October.



## LILIES

These are for the most part hardy bulbous perennials requiring practically the same management. Lilies thrive in deep, well-dug garden soil, or in a moist, well-drained fibrous loam with well-decayed leaf-mould and gritty sand in it. A few, such as *L. atratum*, *L. giganteum* and *L. pardalinum*, love a peaty soil.

### SOME GOOD LILIES

#### Summer Flowering

Plant	Colour of Flowers	Period of Bloom	Height
<i>Lilium bulbiferum</i> (European Lily) . . . . .	Orange-red . .	June . .	30 in.
<i>Lilium candidum</i> (White Madonna Lily) . . . . .	White . . . .	June-July	50 "
<i>Lilium carnolicum</i> (Carniolan Lily) . . . . .	Scarlet, Black Spots . .	July . .	30 "
<i>Lilium chalcedonicum</i> (Turk's Cap Lily) . . . . .	Bright Scarlet	July-Aug.	40 "
<i>Lilium croceum</i> . . . . .	Orange . . .	July-Aug.	100-170 "
<i>Lilium longiflorum formosanum</i> (Trumpet Lily) . . . . .	White . . .	July-Aug.	30 "
<i>Lilium Martagon</i> . . . . .	Rosy - violet, Wine - red and White .	July . .	40 "
<i>Lilium pardalinum</i> (Panther Lily)	Scarlet, Orange and Yellow .	July . .	60 "
<i>Lilium pyrenaicum</i> (Pyrenean Lily) . . . . .	Yellow and Black . .	May and June .	30 "
* <i>Lilium regale</i> . . . . .	White and Yellow . .	July . .	24-40,,
* <i>Lilium umbellatum</i> . . . . .	Rich Red or Yellow Centre and Cherry Tips . . .	June . .	20-40,,

#### Autumn Flowering

Plant	Colour of Flowers	Period of Bloom	Height
<i>Lilium auratum</i> (Golden Rayed or Japanese Lily) . . . . .	White, Yellow, and Crimson	Aug.-Sept.	40 in.
<i>Lilium speciosum magnificum</i> and vars. (Japanese Lily) . .	Carmine, margined White	Aug.-Sept.	50 "
<i>Lilium tigrinum splendens</i> (Tiger Lily) . . . . .	Scarlet-orange, dark Purple Spots . .	Aug.-Sept.	50 "
* <i>Lilium tigrinum Fortunei</i> . . .	Scarlet-orange, dark Purple Spots . .	Aug.-Sept.	72 "

\* Denotes the Royal Horticultural Society's Award of Garden Merit,

## LILIES—LUPINS

Lilies should be planted-out in October, 4 to 5 inches deep, and from 6 to 12 inches apart, according to species; the bulbs should, as a rule, when planted, rest on sand, and they should not be disturbed oftener than every three years. A yearly top-dressing of well-decayed manure each spring will be beneficial. Lilies which form roots from the base of the stem should be planted among low-growing shrubs; these particular lilies may be planted at any time, and somewhat deeper than the non-stem-rooting kinds. Dead flowers should at once be removed, but the stems must not be cut down until they have died off. The Madonna Lily (*L. candidum*) requires different treatment. Transplant this lily in August, only lift when necessary, and top-dress with well-rotted manure each spring.

## LUPINS

These beautiful hardy summer and autumn-flowering annuals and perennials thrive in a light, rich, and well-drained soil deficient in lime, and in sunny positions. The dwarf species are excellent for bedding. Stake the tall-growing plants early.

**Annuals.**—Seed should be sown 1 inch deep and 5 inches apart, from March to May. Do not transplant, but thin out to about 18 inches apart, when fit to handle.

**Perennials.**—Seed should be sown under glass in March or in the open from April to August, and the seedlings thinned to six inches apart. As an alternative, take cuttings in April and strike in sandy soil. Plant out in permanent position in March or October. Cut the stems to the ground after blooming, and mulch with well-decayed manure or with a phosphatic artificial.

Many named varieties in nearly all the colours of the rainbow are in commerce. The new hybrid strains, particularly those known as *Russell Lupins* are especially fine.

## PELARGONIUMS

Some confusion seems to exist over the names geranium and pelargonium. The former term covers both sections of plants, but is correctly assigned to the hardy perennial sorts (see Geraniums, p. 151). The term "perlargonium" includes all half-hardy greenhouse and bedding plants and the show varieties.

## PELARGONIUMS

**Propagation.**—About six months after cuttings are struck, the plants should come into bloom. March-struck cuttings should, therefore, flower under glass in autumn and winter; plants raised in July or August, in early spring (those to be used for bedding in the open should, of course, have their early flowers nipped off); while April and May should see the first blooms of September-struck cuttings. June and July are, however, the best months for taking cuttings. The pots are prepared in the usual manner, and filled with a compost of five-eighths of loam to three-eighths parts of sand and leaf-mould. The cuttings should be taken in dry weather when the parent plant has had no water for some days, and they should be kept dry for twenty-four hours before potting. Place five cuttings round the edge of each 4-inch pot and with their stems inserted to a depth of about an inch or an inch and a half. If the cuttings are struck in August or September, the protection of a frame is not essential and the pots may be sunk in a sheltered south border, where they will require no shading unless the sun is very hot. If a frame is used, the lights should only be put on as a protection against heavy rain. When struck in a frame, keep the atmosphere close, shade, and sprinkle the cuttings occasionally overhead till rooted. Gradually harden off the cuttings for potting-off into 3-inch pots as soon as they are rooted. If they grow too freely before it is time to take them into the house or frames (September), the top shoots should be broken off. These tops may be used to provide another batch of cuttings. Through the winter months, little water and only just sufficient heat (50° F.) to exclude the frost should be given. Pick off all flower buds as they appear, and as the weather improves give more air. Late in March, or early in April, re-pot into 5 or 6-inch pots, so that they may be grown on to be hardened off and planted out late in May or in early June. After flowering, ripen the growth in the sun in the open, then cut the stems back to from 3 to 4 inches from the base in July and rest the plants with the pots on their sides in a frame for two months. Then pot up in fresh soil, keep in the frame, and remove all buds until the plants are moved into the house early in September. Plants may also be raised from seed, but this is rarely attempted by the amateur. All pelargoniums need a light, airy position, but no draughts, and only sufficient artificial heat to keep out frost is needed.

## PRIMULAS—ROSES

### PRIMULAS

This large genus includes the auricula, the cowslip, the polyanthus, and the primrose. Most of them thrive in rich deep loam and appreciate the admixture of old mortar-rubble, leaf-mould and grit with the soil; they are all moisture-lovers, but must have a well-drained soil. The majority like partial shade unless unlimited moisture is available in hot weather.

Sow seeds in pots or pans under glass in May, in a compost of equal parts of loam, leaf-mould and sand, all sieved through a  $\frac{1}{2}$ -inch mesh, and well mixed; cover thinly with fine sandy soil and keep in a temperature of 60° F. Prick-off 1 inch apart into pans as soon as possible and, in about three weeks, pot-up singly into 3-inch pots; harden-off, and keep on a bed of hard ashes in a shaded frame; transfer to 5 to 6-inch pots in September. Propagate also by means of division in September or in spring.

**Pot Culture.**—Pot-up firmly in September or October, using 5 to 6-inch pots and a compost of half loam and half leaf-mould, rotted manure and coarse sand, and keep in a frame until November, pinching-off any flower buds that form, then transfer to the cool greenhouse for flowering.

### ROSES

Roses are divisible roughly into several groups or classes. The Hybrid Perpetuals and the Teas, the two largest classes, contain most of the garden and exhibition roses of to-day. These two groups include sub-divisions; thus, the Hybrid Perpetuals are often held to include Hybrid Teas and Perpetual Bourbons, while the Noisettes are classed with the Teas. Then we have the climbers and ramblers, including the Briar family and the Wichuraiana Roses. Many of the dwarf-growing species of roses are excellent for inclusion in the rock garden.

**Situation.**—An open situation suits roses but they like shelter. They dislike wind, although they like fresh air, and hate to be shut in by big trees. The spot to look for, then, is one sheltered from frosts and violent winds, and not close to high hedges or trees. Shelter is desirable from north and east winds, and if there is room for choice, the rose garden should be on the highest part of the available land, other conditions of soil and shelter being equal. "Frost falls," as

## ROSES

the country people say, and where the roses are planted on a slope, let the more delicate kinds be at the top.

**Soil.**—A deep stiff loam is the very best soil for roses. The worst soil for roses, after pure sand, or nearly so, is the black soil of the town garden, very porous, and over-full of organic matter. Peaty soils, if rich in character, are quite good for roses, a general rule being, that the more gravelly or sandy a soil the less favourable for the rose. An essential for good rose soil is that it should be well drained, and this means a substratum of porous material, chalk or gravel, not many feet below the surface. Gravel has had a bad reputation for roses, but it is not altogether deserved. It is usually considered too dry and hot for roses to thrive in, but really, if a little care is taken to improve it, it will grow very good roses. Tea roses, for example, bloom in perfection on a gravel soil, and many of the briars, and the newer hybrids enjoy just such a light, dryish medium. Chalk, providing that it is deep enough below the surface, and that there is a good depth of soil on top, is not a bad sub-soil. It is well-drained, and not too dry in hot weather. Where it is very close to the surface, it is bad, and needs a lot of work and preparation if it is going to grow good roses. Eighteen inches of decent loam is the minimum for roses on chalk, and where the loam is shallower, special places must be prepared for the plants and extra soil supplied.

**Planting.**—The best time of all for this operation is early November, though it may be done right through the winter—should conditions be favourable—until the end of March. First, the soil must be thoroughly broken up to a depth of at least 2 or 3 feet. Next, the soil must be perfectly drained. Before the roses arrive, the soil should be re-turned to a depth of about 18 inches, and a good allowance of manure incorporated with it. The lowest layer of soil in the bed should consist of rich, fairly retentive soil, which will hold a certain amount of water, while the upper layers should be lighter and more friable, to encourage the plants to produce plenty of good fibrous roots. The holes to receive the roots should be dug, from a foot to 18 inches square and deep enough where bush roses or dwarfs are to be planted, for the point of junction of the scion and the stock to be covered when planted to a depth of about an inch. Where standard roses are being planted, the holes should be about 6 inches deep.

## ROSES

**Pruning : Newly-planted Roses.**—Roses planted during the autumn and winter months should not be pruned until the spring, but when spring-planted, pruning should be done at planting time. The trees should be gone over carefully and all dead wood cut clean out, together with weak and sappy, unripened wood, also any shoots which have received injury. Standards should then be cut back to within about 4 inches of their union with the stock, bush trees being dealt with a little less severely, having about 6 inches of every shoot left above the ground. This pruning is only meant to be carried out the first time after planting. The subsequent treatment varies with the variety.

**Established Roses.**—It must be stressed that the time of pruning roses differs with the variety. Hybrid Perpetuals, both dwarf and bush, as well as standards and Hybrid Teas, are pruned during March, bush and standard Teas and Noisettes during April, while the climbing roses, Hybrid Perpetuals, Hybrid Teas, Teas, and Noisettes should be looked over twice in the year, being well thinned as soon as they have flowered in the summer and pruned properly in March. If required for exhibition, the plants must be pruned much harder than plants for bedding or garden decoration. As a general rule weak-growing varieties should be pruned hard, and strong-growing sorts lightly.

Roses may be roughly divided into classes for purposes of pruning. The first with which we are concerned is that of the Hybrid Perpetuals, Hybrid Teas, Teas, and Noisettes, which require hard pruning. All dead, unripe, and weak shoots should be cut clean out, and the centre of the plant thinned well to allow good room either with a sharp knife or the secateurs. The shoots retained should be cut back to from four to six buds. Examples of this type are : *Captain Ki bee Stuart*, *Lady Pymou'h*, *Mme. Constant Soupert*, *Mrs. Henry Morse*, *Rev. F. Page Roberts* and *Victory*.

The next class consists of the Hybrid Perpetuals, Hybrid Teas, Teas, and Noisettes, which require moderate pruning. These should have the dead unripe and weak shoots cut clean away. The shoots which cross, or may cross when full grown, should be cut out, the plant never being allowed to get crowded in the middle. The strong, well-ripened last year shoots which are left should be cut back to from six to eight eyes. Examples of roses needing this treatment are : *Betty*

## ROSES

*Uprichard, Earl Haig, Emma Wright, General McArthur, George Dickson, Etiole de Hollande, K. of K., Lady Hillingdon, Los Angeles, Mabel Morse, Mrs. A. R. Barracclough, Mrs. Henry Bowles, Red Letter Day, Shot Silk, etc.*

Some varieties of Hybrid Perpetuals, Hybrid Teas, Teas, and Noisettes also require light pruning. They should be treated as the previous classes, but still less wood should be cut away. The centre of the plant should be kept open, but beyond this the strong shoots from the base should be left about 8 inches long, while the other shoots should be cut back till on their laterals or side shoots there are from one to three buds left. The base shoots should be left 12 inches long, while the laterals on the older wood may be reduced to four or five eyes. Roses needing pruning of this kind are such plants as *Caroline Testout, Frau Karl Druschki* and *Hugh Dickson*. Very strong-growing varieties are best pegged down, the shoots being left from 3 to 6 feet in length.

The next section includes roses that need very little pruning, most of them doing best if left to grow naturally. In this group is included the climbing kinds of Hybrid Perpetuals, Hybrid Teas, and Teas, as well as some of the other climbers. The necessary thinning out of dead wood and of the shoots which are likely to overcrowd the plant, together with the worn-out wood of over two years' growth, will keep the plants in full vigour and blossom. The removal of the old worn-out wood is as well done in the summer, directly after the plants have done blooming, and the young shoots should at once be tied in to take the place of those removed. It is at this time that any necessary re-shaping of the rose should be done, crowded growths being thinned and the branches re-spaced over the wall or trellis so as to keep as much flowering wood as possible. Where the base of the plant becomes bare, as often happens with climbing roses, the space may be filled either by bending down one or more of the lower shoots to cover the bare space or by shortening one or two of the base shoots to induce them to throw out laterals. Among these climbing roses are: *Climbing Caroline Testout, Cramoisie Supérieure* (Climbing), *Gruss an Teplitz, Mme. Edouard Herriot* (Daily Mail Rose), *Climbing Lady Hillingdon* and *Wm. Allen Richardson*.

VARIETIES.—The varieties of the rose are, of course, innumerable, and so much depends on the taste and preferences

## ROSES

of the individual, that it is impossible, in the space available, to give any adequate list of varieties. Here, however, is a brief selection :

### TWELVE STANDARDS

- |                                    |   |
|------------------------------------|---|
| *Betty Uprichard (Deep Pink)       | bMadame Edouard Herriot (Coppery Rose)                      |
| *Covent Garden (Crimson)           | *Mrs. Henry Bowles (Rich Pink)                              |
| *Dame Edith Helen (Rich Pink) •    | *Norman Lambert (Yellow and Salmon, suffused Orange-bronze) |
| *Etoile de Hollande (Deep Crimson) | *bOphelia (Blush and Flesh)                                 |
| *General McArthur (Crimson)        | *Shot Silk (Salmon Pink)                                    |
| *Golden Dawn (Yellow)              |   |
| *Hugh Dickson (Crimson)            |   |
| *Madame Butterfly (Deep Pink)      |   |

### TWELVE BEDDING ROSES

- |                                    |   |
|------------------------------------|---|
| *Betty Uprichard (Deep Pink)       | *Madame Butterfly (Deep Pink)                               |
| Caroline Testout (Silvery-pink)    | Mrs. Wemyss Quin (Yellow)                                   |
| *Covent Garden (Crimson)           | *Norman Lambert (Yellow and Salmon, suffused Orange-bronze) |
| Else Poulsen (Deep Pink)           | *bOphelia (Blush and Flesh)                                 |
| *Etoile de Hollande (Deep Crimson) | *Shot Silk (Salmon Pink)                                    |
| *General McArthur (Crimson)        |   |
| *Lady Hillingdon (Apricot Yellow)  |   |

\* Denotes Scented Roses ; b Denotes Buttonhole Blooms.

### SIX WEEPING STANDARDS

- |                        |                          |
|------------------------|--------------------------|
| American Pillar (Pink) | Paul's Scarlet (Scarlet) |
| Excelsa (Crimson)      | Shower of Gold (Yellow)  |
| Hiawatha (Crimson)     | Sander's White (White)   |

NOTE.—Any of the Wichuraiana Ramblers may be selected.

## CLIMBERS

### PILLARS AND ARCHES

- |   |                                   |
|---|-----------------------------------|
| American Pillar (Rose, Gold Anthers)              | Hiawatha (Crimson, White at Base) |
| Dorothy Perkins (Pink)                            | Minnehaha (Deep Pink)             |
| Excelsa (Bright Scarlet)                          | Royal Scarlet (Scarlet)           |
| Francois Juranville (Salmon-pink, Orange at Base) | Sander's White (White).           |

## WALLS

### South Walls

- |  |   |
|--|---|
| Climbing Mrs. H. Stevens (White, Peach Centre)                       | Climbing Mme. Melanie Soupert (Saffron-yellow, suffused Pink and Carmine) |
| Climbing Mme. E. Herriot (Coral-red, shaded Yellow and Rosy-scarlet) | Climbing Paul Lede (Deep Rose, shaded Yellow)                             |
| Climbing Lady Hillingdon (Apricot-yellow)                            | Mermaid (Sulphur-yellow, Single).   |

### West Walls

- |  |  |
|--|--|
| Albertine (Vermilion to Copper, Salmon and Coppery-pink Reverse) | Climbing Ophelia (Salmon, shaded Rose)                               |
| Climbing Chateau de Clos Vougeot (Scarlet)                       | Climbing Mrs. Aaron Ward (Yellow, washed Salmon-rose)                |
| Climbing Los Angles (Pink)                                       | William Allen Richardson (Orange-Yellow, shaded pale Straw at edges) |



## ROSES

### East Walls

Alberic Barbier (Creamy-white,  
shaded Yellow)  
Climbing General McArthur (Crimson)  
Climbing Caroline Testout (Silvery-  
pink)

Climbing Mme. Abel Chatenay (Car-  
mine-rose, shaded to Salmon)  
Mme. Alfred Carriere (White, Yellow  
at Base)

### North Walls

Conrad F. Meyer (Silvery-rose)  
Dr. Van Fleet (Pink, deeper in Centre)  
Gloire de Dijon (Buff)  
Paul's Scarlet (Scarlet)

Purity (White)  
Zéphyrine Drouhin (Bright Silvery-  
pink).

## HEDGES

### Tall (6-9 ft.)

*Sweet Briars*  
Lady Penzance  
Lord Penzance  
Meg Merrilies  
*Japanese Briars*  
Conrad F. Meyer  
Nova Zembla

*Multiflora*  
Blush Rambler  
Tausendschön  
*Wichuraianas*  
American Pillar  
Excelsa  
Hiawatha, etc.

### Medium (3-4 ft.)

*Hybrid Perpetuals*  
Frau Karl Druschki  
Hugh Dickson  
*Hybrid Teas*  
Caroline Testout  
General McArthur  
J. B. Clark  
La France

*Hybrid Bourbons*  
Zéphyrine Drouhin  
*Chinas*  
Cramoisie Supérieure  
Fellenberg  
*Hybrid Musks*  
Moonlight  
Pax  
Penelope

### Low

*Moss Roses*  
Common Moss  
Perpetual White

*Dwarf Polyantha*  
Edith Cavell  
Ellen Poulsen, etc.

## ROSE SPECIES

\**R. damascena* [Damask Rose]  
(Pinkish-red)  
*R. gallica* [French Rose] (Rich Red)  
*R. Hugonis* [Yellow] (Black Fruits), D.  
\**R. indica* [Chinese or Monthly Rose]  
(Red), D  
*R. lutea* [Austrian Briar] (Yellow)  
†*R. macrophylla* (Red or Pink)  
\**R. moschata* [Musk Rose] (White)  
†*R. Moyesii* (Rich Red), Single, D

†*R. nitida* (Rose), D  
†*R. pomifera* [Apple-fruited Rose]  
(Crimson)  
\*†*R. rubiginosa* [Sweet Briar] (Pink)  
\*†*R. rugosa* [Japanese Rose] (Rosy-  
red  
*R. spinosissima* [Scotch or Burnt-  
leaved Rose] (White)  
*R. Wichuraiana* (White)

\* Denotes fragrant ; † denotes attractive red berries in autumn ; D dwarf.  
Dwarf Species Roses, useful for Rock Gardens and for Banks, are : *R. R. altaica* (White, flushed Yellow), *alpina* (Crimson), *hispida* (Yellow), *macrantha* (Flesh), *multiflora* (White), *rubrifolia* (Pink) and *Seraphimii* (Rose).



[Malby

SCABIOSA (Scabious, Mixed)

M.M.S.

L.



## SWEET PEAS

For really good results it is necessary to have a rich soil properly prepared prior to sowing. A trench 2 feet wide should be dug out to a depth of from 2 to 3 feet, while a plentiful supply of well-rotted horse manure should be worked into the lower strata some 10 inches below the surface. With the top-spit may be incorporated a little leaf-mould, bonemeal, soot, and lime, but no stable manure. Sweet Peas can be sown in the open on a dry day, generally early in March, but rather earlier in a warm, sheltered situation. It is often beneficial to soak the seeds in warm water overnight, especially if the weather is very dry. The seed should be sown  $1\frac{1}{2}$  inches deep and 3 inches apart, the surface being dusted with soot. When about 4 inches high, thin-out to 6 inches apart, and support by means of twigs. As the plants grow taller, stakes 7 to 8 feet in height should be placed in position. Wire peaguards or strands of black cotton should be used to keep the birds from the seeds. To secure the finest blooms, however, the seeds should be sown in late autumn or early in February in 5-inch pots, placing six seeds in each, or a single seed in a small pot. The seeds may also be sown some 2 inches apart in boxes about 4 inches deep, but the seedlings must be potted-off singly as soon as possible. A compost of two-thirds fibrous loam and one-third leaf-mould, to which a sprinkling of bonemeal, wood ashes and coarse sand have been added, will be found most suitable. Raise the young plants on a shelf near the glass in a cool greenhouse or in a frost-proof frame. Before being planted out into the open, early in March, when the plants are about 4 inches high, the plants should be hardened off in a cold-frame. Not more than three growths should be allowed to spring from each root, if exhibition blooms are desired. They should be planted out one foot apart in rows, and confined to a single stem, all tendrils being cut off. The stems should be tied singly to tall canes, and when the plants have grown to 3 or 4 feet high, they should be given, after rain or a soaking with clear water, a little soot-water or weak liquid manure (the colour of weak tea), once a week. Water applied to sweet peas must have been exposed to the air for twenty-four hours; cold water may cause the buds to drop. The tips should be pinched-out when they reach 6 to 8 inches above the top of the stakes, and the soil between the plants should be kept continually stirred.

## PANSIES—VIOLAS—VIOLETS

### PANSIES AND VIOLAS

These two plants are so similar in their cultural requirements that we treat them under the one heading. Any ordinary, deeply-dug, moderately rich loam will suit them ; a sprinkling of good compost and a dressing of soot or bonemeal should be scattered on the top. A cool, but not damp position in partial shade is best.

Pansies and Violas may be propagated from seed, by cuttings, or by division of the roots. Seed intended for spring flowers should be sown in boxes in June, using a good light soil, and the box should be covered with a sheet of glass until the seeds are up. When fit to handle transplant 2 inches apart into other boxes. As frosty weather approaches the boxes should be placed in a cold frame for the winter. At the beginning of April, transplant about 9 to 12 inches apart into partially-shaded beds. Cuttings of new, but vigorous growths from the centre of the plant may be struck in September in a shady frame and planted-out in March. Propagation by cuttings may take place any time from April to the end of October, although August and September are the best months.

### VIOLETS

Violets should be propagated annually in June ; when the plants have flowered, remove them from the soil, divide them into single crowns, cutting off all the runners and dead foliage and selecting the finest outside crowns only ; then plant-out the single varieties 15 inches apart each way, and the double kinds 10 to 12 inches apart, and press the soil firmly round the roots, but do not bury the crown. A rich, well-dug and well-drained bed with an east aspect, where they can receive the morning sun, should be chosen. Pinch-off all runners as they appear, and give a little shade from the sun in hot weather. Nothing more, save fortnightly doses of weak liquid manure or dustings with an artificial fertilizer and soot, is required for their culture during the summer months. The double varieties should be wintered in pots under glass or in a frame. Violets may also be propagated by cuttings struck in a cold frame in September or October.

Violets may be grown in pots, by placing two or three runners or offsets in a pot in April or May, and keeping them in a frame, slightly shaded from the hot sun in summer ; loam, leaf-mould and sand suit them admirably, but the violet is not particular as to soil.

## RAISING PLANTS FROM SEED

It cannot be too strongly stressed that seed should never be sown in a cold, wet soil. Wait until the ground has dried and until the weather really bids fair to be mild. The smaller the seed, the finer should be the soil in which it is grown. The soil in which seed is sown should be dry enough to crumble lightly when worked with the hand.

### IN THE OPEN

It is advisable for the seed-bed to be situated in partial shade and sheltered from the north and east.

Too rich a soil must not be used, and it should contain 10 per cent to 20 per cent of sand. The soil should be made as fine as possible. The bed must be pressed down firmly and left to settle for ten days before seeding. Water the bed thoroughly, if dry, and sow the seed thinly in drills running north and south, if possible, and about 6 inches apart.

**Depth to Sow.**—The seeds should be covered lightly with fine, sandy soil; for minute seeds a mere sprinkling of sand is sufficient; medium-sized seeds must have a covering of little less than half an inch thick; and large seeds can do with  $\frac{1}{2}$  to 1 inch of soil over them. Seeds may be sown slightly deeper out-of-doors than under glass. A good rule is to cover the seeds with a layer of earth twice their own thickness. Seeds sown in heavy clay soil must not be placed so deep as those planted in medium loam, while in sandy soil a covering of nearly twice that given in a heavy soil will be required.

**Watering.**—Give the seeds a good watering from a can with a very fine rose as soon as they have been covered; keep the soil uniformly moist but not too wet. A few strands of black cotton, supported on small sticks, should be stretched across the bed to keep the birds away.

**Thinning-out and Transplanting.**—As soon as the seedlings are large enough to be handled between finger and thumb, in a month or so, they should be pricked-off. This should always be done at the earliest possible moment. In order that the roots shall not be torn the seed-bed should be watered the evening before the day on which thinning is to take place. The seedlings should be raised from the seed-bed by means of a small fork; each seedling may then be separated from its neighbours without any damage to its roots, and should

## SEED SOWN IN THE OPEN

be planted very firmly, by means of a small trowel, in a hole just large enough to receive the roots without cramping them unduly.

Sturdy seedlings should be transplanted about 10 inches apart, smaller ones 6 inches apart. If the seedlings are to be thinned and not transplanted, the fork is not used to raise them, but the unwanted seedlings are pulled up between the finger and thumb, a finger of the other hand being pressed upon the soil to keep the roots of the other seedlings in place. Transplanting is best done in the evening. In dry weather the reserve bed should be well watered the day before transplanting, but it must not be made too wet. The bed should be again watered after the transplanting has been done.

The seedlings should be watered in dry weather (but not when the hot sun is on them) and the bed must be well hoed. Tepid water is far more congenial to them than cold water, and provided the soil is fairly rich the seedlings should receive no manure until they approach maturity. A dressing of soot-water is a sufficient stimulant.

## UNDER GLASS

The less hardy plants must be raised under glass, and the soil for the seed pans or boxes should consist of a composition of two-thirds good loam and one-third leaf-mould, together with a good sprinkling of sharp silver sand. The compost should be sieved through a quarter-inch mesh and the soil for covering made even finer.

The seed pans or boxes should be drained by means of "corks" or broken pots, an inch of corks being required in a box or pot 5 inches in depth. Earthenware pots or pans are preferable to wooden boxes. The seeds must be sown thinly, and then be watered, not with a can but by immersing the pots or pans nearly to their brims.

The seed pans should be placed in a frame or greenhouse in moderate, but steady heat (about 60°F.). A sheet of glass should be put over the boxes and the glass in turn be covered with a sheet of brown paper to keep out the light. Each day the glass must be lifted so that the condensation may be wiped off.

No further water need, as a rule, be given until the seeds have germinated. As soon as the seeds are up, the glass and paper may be removed, and the boxes must be lifted by gradual steps up to within 6 inches of the lights.

## SEED SOWN UNDER GLASS

In warm weather it is wise to water the seedlings in the evening, but in the colder weather the watering must be done before lunch-time, or they may "damp off."

**Pricking-off the Seedlings.**—The seedlings must be pricked-off when they are from 2 to 3 inches high, and a wooden label should be used in place of a fork. Set the seedlings from 1 to 3 inches apart so that the leaves do not touch (strong growing kinds 6 inches apart), and should be transplanted into boxes of light, sandy soil and again put in a position some 6 inches from the lights. The seedlings should be planted so that the first pair of leaves show just above the soil; they must be planted firmly and should have the soil pressed tightly down round the roots and stems, though care must be taken not to injure any part of the seedling. A thin dibble about the size of a pencil should be used to make the holes for the seedlings, and these must not be made too deep. Do not "firm" the seedlings by pressing the earth round the stems with the fingers, but use the dibble, inserting it into the soil, in three or four places round the seedlings, about half an inch from them, and to the same depth as when preparing the holes.

After pricking-off keep the seedlings in a close atmosphere and shade from the sun for a few days.

**Hardening-off and Planting-out.**—The seedlings should be transferred to the cold frame in March or April. There they are hardened-off by gradually being given more and more air until they are planted-out very firmly in the reserve garden in May or at the beginning of June.

**Wintering.**—Half-hardy biennial and perennial seedlings will require protection during the coming winter, and in early October must be lifted and re-planted, close together, in light sandy soil in boxes, to be stored in the greenhouse in a temperature of about 50°F., or in a cold frame. Give as much air as possible when the weather is fine and dry, to prevent the plants from "damping off."

Should there be any signs of this, sprinkle the soil with powdered charcoal.



## SEED SOWING GUIDE

In the following table the letters following the name of the species signify as follows :

H.A.—Hardy Annual;  
H.B.—Hardy Biennial;  
H.P.—Hardy Perennial;

H.H.A.—Half-hardy Annual;  
H.H.B.—Half-hardy Biennial;  
H.H.P.—Half-hardy Perennial.

\* Denotes sow in the open.

† Denotes sow under glass.

For Vegetables see separate list, page 183.

Name of Plant	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Abrovia H.H.A.		†	†									
Acæna H.H.P. .			†									
Acanthus H.P. .					*	*						
Achillea H.P. .					*	*						
Aconitum H.P..					*	*						
Acorus H.P. (Sweet Flag).					*	*						
Acroclinium (syn. Helipte- rum H.H.A. .			†	†	*	*	*					
Adenophora H.P.			†	*								
Adonis H.A. .					*	*						
„ H.P. .												
Æthionema H.P.			†									
Agathœa H.H.P.			†									
Ageratum H.H.A.			†	†								
Alonsoa H.H.A. (Mask Flower)			†	†	*	*			*			
Alyssum H.A. .			*	*	*	*						
Alyssum H.P. .					*	*						
Amarantus H.H.A. . .			†	†								
Anagallis H.H.A. (Pimpernel) .			†	†	†	†						
Anchusa H.H.B.			†	†	*	*						
„ H.P. .												
Androsace Alpine (Rock Jasmine)			†		*							
Anemone H.P. .				*								
Antirrhinum H.B. and H.P.			*	*	*	*	*		*			
Aquilegia H.P. and H.B. (Col- umbine) . .						*	*	*				
Arabis H.P. .												
Arctotis grandis H.H.A. . .			†	†								
Aristolochia H.P. Climber . .			†				*	*				
Armeria H.P. .												
Asparagus H.H.P.			†	*	*							
Asperula H.A. .			†						*			
Aster (China) H.H.A. . .			†	†	†	*	*					
Aubrietia H.P. .					*	*						
Auricula H.P. .	†	†	†									

# SEED SOWING GUIDE

Name of Plant	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Balsam H.H.A..			†	†	*				*			
Bartonia H.A. .			†	*								
Begonia (Fibrous)	†			•								
(Tuberous)		†										
Bellis (Daisy)					*	*						
H.P. . . . .												
Bellium minutum			†									
H.P. . . . .												
Bocconia (Plume					*	*						
Poppy) H.P.												
Brachycome			†	*								
H.H.A. . . .												
Buphthalmum					*	*						
H.P. . . . .			*									
Calamintha H.P.			†	*		*						
Calandrinia H.A.					*	*						
H.P.												
Calceolaria			†			†						
H.H.P. . . .												
Calendula H.A.			*	*				*				
(Pot Marigold)			*	*								
Campanula H.A.												
H.B.					*	*	*					
and H.P.												
Canary Creeper,												
see Tropæolum												
Canna (Indian		†	†	†	†							
Shot) H.H.P.			*	*	*	*						
Carnation H.P..												
Catananche H.A.			†	†								
H.P.												
Celosia H.H.A. .			*	*					*			
Centaurea (Corn-												
flower H.A.			†	†								
(Sweet Sul-			*									
tan) H.H.A.			†									
H.B. and				*	*	*	*					
H.P. •					*	*	*					
Centranthus H.P.			†									
Cerastium H.P.												
Cheiranthus, see												
Wallflower					*	*						
Chelone H.P. .												
Chrysanthemum			*	*				*				
H.A.					*	*						
H.P.												
Cineraria H.H.P.				†	†	†			†			
Clarkia H.A. .			*	*								
Cobæa H.H.A. .		†										
Coleus H.H.A.			†	*	*			*				
and H.P.												
Collinsia H.A. .					*							
Collomia coccinea												
H.A. . . . .				*								

# SEED SOWING GUIDE

Name of Plant	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Commelina H.A.			*	*								
" H.P.					*	*						
Convolvulus H.A.					*	*	(					
and H.P. . .												
Cordylone H.P. .			†									
Coreopsis H.A. .			*	*								
" H.B. and												
H.P. .					*	*			*			
Cosmos H.A. . .			*	*								
Cotyledon H.P. .			†									
Cuphea H. and				*								
" H.H.A. .			†			*						
" H.P.					*	*						
Cyclamen H.H.P.		†	†					†	†	†	†	
Dahlia H.H.P. .			†	†								
Datura H.H.A. .			†	†								
Delphinium H.A.,												
H.B. and H.P.			†	†	†	*	†	†				
Dictamnus H.P.					*	*						
Digitalis (Fox-												
glove) H.B.					*	*	*					
and H.P. . .												
Dimorphotheca												
H.H.A. . .			†		*							
Draba H.H.P. .			†	†								
Echinops (Globe						*	*					
Thistle) H.P.					*	*						
Eremurus H.P. .					*	*						
Erodium H.H.P.			†	†	*			*				
Erysimum H.A.			†	*	*							
Eschscholzia			*	*	*	*						
H.A. . . .			†	†	*	*						
Fuchsia H.H.P.			†	*	*	*						
Gaillardia H.H.A.			†	*	*	*						
" H.B.						*						
Gaura H.P. . .		†										
Gentiana H.H.P.			†									
Geranium H.P. .			†	*	*			†				
Geum H.P. . .				*	*							
Gilia H.A. and			*	*	*	†						
H.H.B. . .												
Globe Flower,												
see Trollius												
Gloxinia H.P. .	†		*	*				*				
Godetia H.A. .												
Gomphrena												
H.H.A. . .			†									
Grammanthes			†	†								
H.H.A. . .			*	*	*	*			*			
Gypsophila H.A.			†	*								
" H.P.												
Hedysarum H.B.				*	*	*						
and H.P. . .					*	*						
Helenium H.P.					*	*						

# SEED SOWING GUIDE

Name of Plant	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Helianthus H.A. H.P.			*	*	*	*						
Helichrysum H.A. and H.P.		†	†	.				.				
Heliotropium (Cherry Pie)			†	†				.				
Helipterum (syn. Acroclinium) H.H.A.			†	†			†					
Helleborus (Christmas Rose) H.P.			†		*	*				†		
Heuchera H.P.								.				
Hibiscus H. and H.H.P.			†	*	*							
Hollyhock H.P. (Althaea rosea)									.			
Humulus (Hop) H.A. H.P.			*	*	*	*						
Iberis " (Candy- tuft) H.A. H.P.			*	*	*	*		*				
" Impatiens H.H.P.			†	†								
Incarvillea H.A. and H.P.				†	*							
Ipomœa (Morn- ing Glory) H.H.A.			†	†								
Jasione (Sheep's Scabious) H.P.			†									
Kniphofia (Red Hot Poker) H.P.			†	†								
Kochia H.H.A.			†	*								
Larkspur H.A.			*		*			†				
Lathyrus H.P.			†	*								
Lavatera (Mal- low) H.A., H.B. and H.P.			*	*	*							
Lavender (Tidy Tips) H.A.				*								
Leontopodium (Edelweiss) H.P.			†	*				*				
Leptosyne H.A. H.P.			*		*	*						
Lewisia H.P.			†		*	*						
Liatris H.P.				*	*			*				
Limnanthes H.A.			†	†				*				
Limonium H.A.			†	*				*				
Linaria H.A. H.P.			*		*	*						
Linum (Flax) H.A.			*	*	*	*						

# SEED SOWING GUIDE

Name of Plant	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Linum H.P. .			†	*								
Lisianthus H.B.					†							
Lobelia H.H.P.			†	†								
Lunaria												
(Honesty) H.B.					*	*	*					
Lupinus H.A. .			*	*	*	*	*	*				
" H.P.			†	*	*	*	*	*				
Lychnis H.A.												
H.B. and H.P.			†	*								
Lythrum H.P. .				*								
Malcomia (Vir-												
ginian Stock)												
H.A. .			*	*				*				
Malva H. and												
H.H.A. .			†	*								
" H.P. .					*	*						
Marigold, see												
Tagetes . .												
Maurandia												
H.H.P. .			†									
Meconopsis H.P.					*	*						
or H.B. .												
Mimulus (Musk)												
H. and H.H.A.				*	*							
and H.P. .			†									
Mullein, see												
Verbascum .												
Myosotis (Forget-						*	*					
me-not) H.A.				*	*	*	*					
" H.P. .												
Nasturtium, see												
Tropæolum .												
Nemesia H.H.A.			†					†				
Nemophila H.A.			*	*				*				
Nepeta H.P.					*	*						
(Catmint)												
Nicotiana												
(Tobacco												
Plant) H.H.P.			†					†				
Niremburgia												
H.H.P. .			†									
Nigella (Love-in-												
a-Mist) H.A.			*	*				*				
Oenothera (Eve-												
ning Primrose)					*	*						
H.B. and H.P.												
Oxalis H.A. and												
H.H.A. and												
H.P. .			†	†								
Pansy (Viola) H.P.						†						
Papaver (Poppy)												
H.A. .			*	*	*	*		*				
" H.B. and												
H.P. .					*	*						

# SEED SOWING GUIDE

Name of Plant	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Pentstemon H.H.P.			†									
Petunia H.H.P.			†	†								
Phlox H.H.A. .		†	†	* *	*			•				
„ H.P.				* *								
Platycodon H.P.			†	†								
Polyanthus H.H.P. . .				†	†		*					
Portulaca H.H.A. . .			†	*								
Primula H.H.P.					†							
Pyrethrum H.P.					*	*						
Ramondia H.P.			†									
Reseda (Mignon-ette) H.A. .			*	*	*	*		•				
Rocket H.A., H.B. and H.P.			*	*	*	*				•		
Rudbeckia H.P.					*	*						
Salpiglossis H.H.A. . .			†						*			
Salvia H.H.A. .		†		*								
„ H.B. .				*	*	*						
„ H.P. .				*	*	*						
Scabious H.A., H.B. & H.P.			*	*	*	*						
Schizanthus H.H.A. . .		†	†	*								
Silene H.A. . .			*	*					*			
„ H.B. and H.P. .					*	*						
Sisyrinchium H.P. . .			†	*	*							
Smilax H.H.P. .			†	†								
Stock ( <i>Matthiola annua</i> ), Ten-week H.H.A.			†	*								
„ Inter-mediate			†	*								
„ E. Lothian H.H.B.			†				†					
„ Brompton H.H.B.							*					
„ Nice or Winter-flowering						•						
„ Night-scented ( <i>Matthiola bicornis</i> ) H.A. .			*	*		†		†				
„ Virginian. See Mal-comia.												

# SEED SOWING GUIDE

Name of Plant	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Stokesia H.P. . .			*		*	*		*	*	*		
Sweet Pea H.A. ( <i>Lathyrus</i> )		†										
Sweet William H.P. ( <i>Dianthus</i> <i>barbatus</i> )					*	*	*					
Tagetes (African and French Marigold) H.H.A. . . .			†	†		*						
Thalictrum H.P.			†		*	*						
Thlaspi H.H.P.			†									
Thunbergia H.H.A. . . .			†									
Torenia H.H.A.			†									
Trachelium H.H.B. . . .			†	†	†	†						
Trollius (Globe Flower) H.P.					*	*						
Tropæolum— (Canary Creeper)			†	*								
„ (Nasturtium)			*	*	*	*						
Valeriana H.P.					*	*						
Verbascum H.B. and H.P. . . .					*	*	*					
Verbena H.H.A.			†									
„ H.H. Biennials			†	†	†							
„ H.H. Perennials . .		†										
Viola H.P. . . .						†						
Wahlenbergia H.P. . . . .			†	*								
Waitzia H.H.A.			†									
Wallflower ( <i>Cheiranthus</i> ) H.B. H.P. . . . .				*		*						
Xerophyllum H.P. . . . .						*						
Zauschneria H.P. . . . .			†									
Zinnia H.H.A..			†									

H.A.—Hardy Annual ;  
H.B.—Hardy Biennial ;  
H.P.—Hardy Perennial ;  
\* Denotes sow in the open.

H.H.A.—Half-hardy Annual ;  
H.H.B.—Half-hardy Biennial ;  
H.H.P.—Half-hardy Perennial.  
† Denotes sow under glass.

## PLANTING

**Bedding Plants.**—In planting, use a trowel to scoop out just sufficient earth to make a hole to take the roots without crushing. Do not use a dibble as this is apt to make a hole so deep as to leave an air pocket under the roots, which will be parched and will also not have a hole wide enough to accommodate them. Press the soil very firmly round the roots with the hands after planting or the plants will be slow in becoming established and will be greatly handicapped. If the weather is warm, bedding-out should be done in the late afternoon or in the evening, and after planting the bed should receive a thorough soaking with warm water through a fine rose—which operation should be repeated daily for a week or so if the weather is very dry. If the nights tend to be cold, water should not be applied through a rose, but a little water should be given to the roots of each plant by means of a can with the rose removed. This will save possible chilling of the foliage and consequent checking of growth, or even the death of the plants. Do not bed-out while the soil is very dry either in the case of summer bedding or when planting the spring bedding. Give the bed a good soaking with water the evening previous to the planting, before the final raking down of the soil, and, as stated above, after the bedding-out has been completed. Care must be taken to insert the plant to about the same depth as it stood in its pot or in the box. Keep the "ball" intact and plant so that the top of it is just  $\frac{1}{2}$  an inch below the ground level. If the plant is set in too low there is the possibility of it "damping-off." Always remove the crocks at the bottom of the pot before the plants are bedded-out, otherwise the bed, in the course of time, will become littered with these bits of broken pots. Pot plants make better bedding subjects than those grown in boxes, as the roots are not so liable to be damaged when removed for bedding-out.

**Herbaceous Border.**—As a general rule the best time to plant the border is in October or November, but in the north and very exposed positions it is often advisable to defer the planting until March or April. The plants that bloom early should, of course, if possible, be planted in the autumn so that the roots may get well-established before they have to bear the strain of flowering. This applies to such plants as



## PLANTING—TRANSPLANTING

lupins and peonies. Autumn planting is also advisable in light soils, as very dry weather in late spring may prove disastrous to plants newly inserted in a light soil that will soon dry and parch the unestablished roots. In wet, cold soils spring planting is best; if plants must be put in in the autumn, let it be done in September. Thick succulent-rooted plants are more apt to decay if planted in autumn; these should be spring-planted whenever possible.

In planting, holes should be dug sufficiently deep to allow the roots to be placed in without being doubled up, and wide enough to admit of the roots being well-spread out, and covered with fine soil which should be pressed firmly round the crowns. Firm planting is essential and care must be taken that the crowns are not placed lower than ground level, as there is every possibility of their rotting off if this is done; the plants should be so inserted that the crowns are just on the surface of the soil. Some herbaceous plants are "tap-rooted," as the anchusa and sunflower, and these demand an extra deep hole for planting, otherwise their long roots will be bent up and prevented from penetrating deeply into the soil and so obtaining the necessary nourishment and moisture. When planting, study the habits of the roots, and allow them to follow what seems to be their natural course, rather than direct them in one special way. Some roots want to run perpendicularly downward, others grow horizontally; each should be assisted and humoured. See also Bulbs, page 75; Climbing Plants, page 120; Shrubs and Trees, page 79; Fruit, page 192; and Vegetables, page 182.

### TRANSPLANTING

The great thing in transplanting is to keep the roots out of the ground for as short a time as possible, and for this reason, when transplanting trees and large plants, it is advisable to prepare the sites and dig the holes they are to occupy in advance. If the roots must remain out of the soil for some little time moisten and cover them with litter and matting to keep them from becoming dried up. If the roots have become dry, soak them well before planting. The "ball" of earth round the roots should, if possible, be kept intact.

Every care must be taken not to damage the roots. Seedlings should not be roughly pulled up with the hand, a trowel

## TRANSPLANTING—WATERING

or hand-fork should be used ; herbaceous plants and small shrubs are best lifted by inserting two garden forks, to their full depth vertically, one on each side and close in to the plant, and then levering the handles gently downwards and away from the plant. Trees and shrubs should be well watered after transplanting, and if the weather becomes dry before they are thoroughly established evergreens should have their foliage thoroughly syringed every evening as long as the drought lasts. See also Planting Fruit Trees, page 192, and Thinning and Transplanting under Seed Sowing, page 163.

### WATERING

**In the Open.**—Water from the main, and even pump water, is often far too hard, but this hardness may be removed by keeping it in shallow tanks and exposed to the air for some time before using. Rain-water is by far the best for plants. Plants under glass should always be watered from tanks kept at the same temperature as the plants are growing in ; therefore some vessel must always be kept in the house. Watering is best done when the sun has gone down.

Plants in the open should never be watered until it is essential. When commenced, sufficient must be given thoroughly to moisten the top 30 inches of the soil.

Plants coming into bloom and in full growth always, require more water than plants past their prime and "going-off." They should never be watered overhead when in bloom or in cold weather ; and never, except to wash off, dust, should those having a soft or woolly foliage be so treated ; but plants with hard leaves may be plentifully syringed in warm weather, especially when in full growth, or to soften the bark and encourage the formation of new shoots. Syringing should not be overdone ; if a moist atmosphere is required this is better obtained by keeping the walls and floor well damped. The best time to syringe is in the early morning before the sun is up, and again after the sun has lost its strength in the late afternoon and after the house has been closed.

**In the Greenhouse.**—Plants will need most water in the spring and summer. Water at least once a day, sometimes twice at this season. Dormant plants and freshly potted plants are best kept rather dry until growth begins. A watering once a week will suffice for most plants in winter ; at all times the soil must be prevented from becoming dust-dry.

## PROPAGATION—LAYERING

In the greenhouse watering is often as useful for keeping the air in a proper state of moisture as for anything else, and in hot weather the walls, staging and floor should be frequently syringed. When the air is very hot and dry, the floor may with advantage be swilled with water.

In the summer the watering of the plants should be done early in the morning or in the early evening, but in spring, late autumn, and in winter it is essential to water in the morning. Nearly all plants, and especially those that have not recently been re-potted, will be the better for a watering with liquid manure every ten days while the buds are forming. The manure-water must be discontinued as soon as the flowers are out. See also articles on Seed Sowing, page 163, and The Lawn, page 33.

## PROPAGATION

### LAYERING

Layering is usually effected about July, though it may be carried out at any season of the year. An upward cut, just below a joint, is made in one of the lower shoots of the plant ; the incision passes from the underside through to the centre of the shoot, and is from about 1 inch to 3 inches in length, according to the size and nature of the plant to be propagated. The aim is to produce a "tongue" of bark and wood that can be wedged open and pegged down into the soil ; the more the tongue is kept open when placed in contact with the earth the better the chance of rooting. The shoots chosen for layering must be healthy and semi-matured. It is usual to layer several shoots at a time, and when the cuts have been made, the earth all round the plant is stirred up to a depth of 3 inches and the layers are pegged down firmly. Little mounds of earth some 6 inches high are then piled up over the layers, which are pressed firmly down into the earth, and well watered. An addition of sharp silver sand to the soil (up to 50 per cent) helps the layers to root. The outer end of the shoot, beyond the cut, should be turned upwards and all buds not required to form shoots should be removed. When the layers have rooted firmly, they may be cut away from the parent plant and be potted-up or planted-out, preferably in autumn. The layers of soft-wooded plants, such as the carnation, will be found to root in six weeks or so.





## PROPAGATION—DIVISION—LEAF-CUTTINGS

### DIVISION

Propagation by division is best carried out in October, and November, or in March and April. The clumps should be lifted with their roots as entire as possible, that is, with a good "ball" of earth round the fibres. This is done by inserting two forks vertically downwards, one on either side of the plant and backs facing each other, and then by levering the clump and its roots gently upwards. When the plant has been lifted, don't, as is so often done, use a spade to cut the roots apart, but carefully divide the plant up into as many crowns as possible by means of a sharp knife which will do the minimum injury to the roots. The strong new outer crowns are those that should be retained and replanted; the old inner roots being removed. The stems that have already borne flowers should be cut away from the new crowns, so that only the young and vigorous shoots from the base remain. Replant as described in the article on Planting, page 174.

### LEAF-CUTTINGS

This method of propagation is very interesting and one not often resorted to, and then only in the case of plants with succulent or thick spongy leaves, and soft veins.

A perfectly healthy leaf must be selected, it is then taken and planted, stalk downwards, and with the leaf proper just clear of the soil, in equal parts of sandy loam and leaf-mould in a propagating case. Roots will soon form and a young plant will grow from them. In the case of a large and thick leaf, the veins on the back may be slit at their junctions. The stalk is then planted in sandy soil, and the whole leaf is pinned firmly backside-down, so that it cannot move, on to the mould in the propagating case (temperature 70° F.), and allowed plenty of moisture, though the bed must be well-drained and not be permitted to become stagnant, or the leaves will rot. In a short time plants will grow wherever the veins have been slit. The little plants can be transplanted or potted up as soon as they have roots strong enough to support them.

This method of propagation, which may be resorted to at any season when fully-matured leaves are available, is particularly suitable in the case of such plants as the achimenes, begonia, and the gloxinia.

## PROPAGATION—RUNNERS—CUTTINGS

### RUNNERS

Propagation by runners is, perhaps, the most simple method, though only possible with certain plants, namely those that throw out long thin stems or runners which grow out over the surface of the ground. The strawberry is a well-known example of the runner-producing plant. At intervals along the stems will be found joints, and wherever one of these joints comes in contact with the soil and so remains for some time, roots form and foliage is thrown up.

To assist in this method of propagation the earth should be stirred up to a depth of 2 or 3 inches all round the plant and the runners must be firmly pegged down into it, at the required number of joints. Young roots will form, and after a few weeks they will be strong enough to support the new plant, which may be cut away from its parent, and potted up or transplanted. A better method, but one entailing a little more work, is to sink to their brims pots of good sandy soil exactly under the joints of the runners and to peg the latter down firmly to the soil in the pots. This operation provides an easy way of transplanting and one beneficial to the young plant, as the roots are not so easily injured when replanting.

### CUTTINGS

Cuttings should be taken of shoots that have ripened or which are beginning to ripen. The side shoots of plants, low down on the stem, are the best, and should be taken when the sap is in full motion. The leaves of a cutting must never be cut off except in so far as may be necessary at its base in order that it may be inserted.

Strong sturdy shoots varying from 3 to 12 inches in length should be removed from the plant, with a very sharp knife, by a clean straight cut just below a joint. If it is possible to take a "heel" or small wedge-shaped portion of the old wood and bark with it, so much the better, and it is then not essential to cut immediately below a joint. The joint need not necessarily be the junction of two stems, it may equally well be the "eye" from which a pair of leaves have sprung. When no "heel" is taken the cut must be especially clean and just below a joint, but the joint itself must be left intact; in fact, about an eighth of an inch of wood should be left below the joint.

## PROPAGATION—CUTTINGS

The distance between the joints decides the length of cuttings; when these are, say, an inch apart, the cuttings must be 12 inches long and over half this length must be buried in the soil. Where the distance between joints is less, the cuttings may be shorter, but all hard-wooded cuttings should have at least 6 inches in the ground, and all cuttings must be inserted right to the bottom of the hole prepared.

**Types of Cuttings.**—It will be found that cuttings of hard-wooded shrubs, such as the heath or myrtle, are more difficult to strike than those of soft-wooded plants, such as the geranium, and for this reason on hard-wooded cuttings the "eyes" on the part of the stem that will be placed underground should be carefully cut out; this will encourage the formation of roots. The position for all cuttings should, of course, be sheltered and shaded from full sun, and although not necessary with hardy plants, most cuttings, when planted in the open, do better if covered by a hand light until the roots have formed. The less hardy and less vigorous plants should be struck in pots or boxes in a cold frame or under hand lights, while the more delicate still require artificial heat.

There are several plants like the pansy or the honeysuckle whose stems, when mature, are hollow and useless for ordinary cuttings. In such cases the young shoots must be struck, or with the honeysuckle both ends of the cutting may be inserted in the soil. There are other plants, such as dahlias and lupins, whose cuttings must be taken at the junction of the stems and the roots. These require a glass covering.

The cuttings of shrubs may be taken at three distinct periods, firstly in autumn when the wood has hardened and is quite mature; secondly in September or August when the shoots have half-matured; and thirdly when the shoots are beginning to ripen in early summer; the third time is perhaps the best. With many of the hardier shrubs the cuttings may be struck in sandy soil in a sheltered bed in the open. Half-matured cuttings, even of hardy shrubs, must, however, be treated like those of the less hardy natures and be struck under glass. Cuttings of hardy evergreen shrubs are also best struck under glass.

**Compost.**—To make a good compost for striking the cuttings mix equal quantities of leaf-mould and well-sieved loam and add to this a good proportion of sharp silver sand, and then sieve the whole through a quarter-inch mesh. It is always well to sprinkle the surface of the soil which is to



## PROPAGATION—CUTTINGS

receive the cuttings with a layer of sharp silver sand about 1 inch thick, so that when the dibble is pressed down to form the hole for the cutting, some of the sand will trickle into it. The soil should be firmed down and the slips inserted at least  $1\frac{1}{2}$  inches apart. Press the earth well down round the cuttings.

**Inserting the Cuttings.** Of ordinary plants about seven cuttings can be placed in a 4-inch pot. No cutting should be set too deeply, but as in the case of seeds, the depth will depend mainly on the size of the cutting; a good general rule is to set about two-thirds of the length of hard-wooded cuttings in the soil; with soft-wooded cuttings only one-third or one-half should be inserted. Leaves should not be permitted to touch the soil. Cuttings strike more readily when placed at the side of a pot, than when inserted in its centre. Water well after insertion.

It should be borne in mind that too much light, air, water, heat or cold are alike injurious to cuttings freshly inserted under glass. A close equable temperature and a moderate degree of moisture should be maintained until the cuttings have "rooted." This condition is best attained by covering them with a bell glass or hand-light and by shading them if not placed in a shady situation. Once they have struck, which will be in about three weeks, the cuttings should be gradually given more ventilation and hardened-off until they can be potted up singly for the greenhouse, or planted out into the open.

Cuttings of soft-wooded plants soon form roots, and can often be potted-off in a month or so's time; cuttings of hard-wooded shrubs, however, take root less quickly and should not be disturbed for at least a year (sometimes 18 months) after being struck.

**Plant Growth Substances (Hormones).**—Plant growth substances, often loosely called plant "Hormones," are a combination of certain acids, which when diluted with water to the required strength, have a stimulating effect on the growth, and more especially on the rooting properties of plants. They are of great value in the propagating by cuttings of plants which are naturally slow and difficult to reproduce by this method; the effect is to accelerate the production of new roots and speed up the propagating process. Many nurserymen and gardeners now use these substances as a matter of routine. They are sold by leading chemists and sundriesmen, with full

## PROPAGATION—HORMONES

directions for dilution, etc. The dilute solution is put into a jar or similar vessel, and the cuttings are stodd in it for about forty-eight hours. After this they are rinsed under a tap, and inserted in soil in the propagating frame in the usual way. After the treatment they usually root much quicker and more readily, and cuttings of certain hardwood plants, such as holly and yew, which have hitherto proved difficult, may now be rooted quite easily. At the time of writing the process is in its early days, and it may develop along simpler lines, such as the use of the substances in powder form. It is certainly well worth following up by all who are interested in the propagation of difficult plants.

## ROOT-CUTTINGS

This is another and easy method of propagation eminently suitable in the case of plants with fleshy roots. Cuttings of these roots may be from 2 to 6 or 8 inches in length, in accordance with the virility of the plant. The thickness of the fleshy roots will vary very much, according to the type of plant. The root-cuttings are planted 1 inch deep and 3 to 6 inches apart in light sandy soil in partial shelter against a warm wall, in a cold frame, or sometimes in a propagating case with slight bottom-heat. The cuttings are inserted vertically with that part of the root which was nearest the stem uppermost.

In propagating plants whose roots are fleshy, but rather more fibrous in nature, the larger root-stems should be cut away from the crowns with as many of the smaller fibrous roots as possible adhering, and should be planted as advised above, but should be left intact and not be cut up into small pieces. In the case of plants whose roots creep horizontally just below the surface of the soil, cut the roots into pieces from 2 to 6 inches in length.

The root-cuttings are sometimes inserted rather close together in the autumn and potted up singly or planted out in the open in April or May. Others may preferably be planted direct in the nursery rows, and are left to grow for a year undisturbed.

# VEGETABLE GROWING AT A GLANCE

Name	Amount of Seed or Number of Roots required for 50-foot Row	Depth to Sow or Plant in Inches		Time of Germination in Days	Distance Apart		Time to reach Maturity in Weeks
		Light Soil	Heavy Soil		In Rows	Between Rows	
Artichoke							
Jerusalem	7 lb. Tubers	3	1	—	1' 6"	3'	30
Globe	18 Plants	1	$\frac{3}{4}$	—	1' 6"	2'	70
Asparagus	$\frac{1}{2}$ oz. or 25 Plants	2	1 $\frac{1}{2}$	14-25	2'	2'	170
Bean (Broad)	1 Pint	3	2	7-14	9"	2'	15
Bean (Kidney or French)	$\frac{1}{2}$ Pint	2	1 $\frac{1}{2}$	7-14	6"	2-3'	12
Bean (Runner)	1 Pint	3	2	7-14	6"	6'	15
Beetroot	1 oz.	2	1	9-18	9"	1' 3"	17
Borecole or Kale	$\frac{1}{4}$ oz.	1 $\frac{1}{2}$	1	8	2'	2'	20
Broccoli	1 oz. for 8 Sq. Yds.	$\frac{1}{2}$	$\frac{1}{3}$	6-10	2'	2'	20
Brussels Sprouts	$\frac{1}{4}$ oz.	$\frac{1}{4}$	$\frac{1}{2}$	5-12	2'	2'	25
Cabbage	$\frac{1}{4}$ oz.	1	$\frac{1}{2}$	0-10	1' 3"	1' 8"	18
Carrot	$\frac{1}{4}$ oz.	1	$\frac{1}{4}$	10-20	8"	1' 3"	24
Cauliflower	$\frac{1}{2}$ oz.	$\frac{1}{2}$	$\frac{1}{4}$	6-12	1' 6"	2'	20
Celeriac	$\frac{1}{4}$ oz.	$\frac{1}{2}$	$\frac{1}{4}$	15	1' 3"	1' 6"	24
Celery	$\frac{1}{4}$ oz.	$\frac{1}{4}$	$\frac{1}{8}$	10-20	1'	4'	32
Kale (See Borecole)							
Leek	$\frac{1}{4}$ oz.	$\frac{1}{2}$	1	6-12	9"	2'	28
Onion	$\frac{1}{2}$ oz. or 1 Bulb per foot of Row	1 Only cover	$\frac{3}{4}$ half- Bulb	10	9"	1'	30
Parsnip	$\frac{1}{2}$ oz.	$\frac{1}{4}$	$\frac{1}{2}$	12-18	9"	1' 6"	32
Pea	1 Pint	3	1 $\frac{1}{2}$	7-12	3"	2-4'	15
Potato	1st Early 8 $\frac{1}{2}$ lbs. 2nd Early 4 lbs. Main Crop 3 $\frac{1}{2}$ lbs.	6	4	14-21	1' 3"	2'	16
					1' 6"	2' 6"	16
					1' 6"	2' 6"	10
Rhubarb	10 Crowns	2	1	—	5'	5'	108
Savoy	$\frac{1}{4}$ oz.	$\frac{3}{4}$	$\frac{1}{2}$	5-10	1' 3"	1' 8"	24
Sea-kale	1 oz.	2	1	15-20	1' 4"	2' 6"	20
Shallot	1 oz.	$\frac{3}{4}$	$\frac{1}{2}$	10	9"	1'	25
Spinach	$\frac{1}{2}$ oz.	1	$\frac{1}{2}$	10-20	6-8"	1'	12
Turnip	$\frac{1}{4}$ oz.	1	$\frac{3}{4}$	6-12	6"	1' 3"	12
Vegetable Marrow	3 Seeds for every plant required	1 $\frac{1}{2}$	1	7-14	—	—	12

## VEGETABLE SOWING GUIDE

This table shows what seeds should be sown during the various months of the year.

Seed or Tubers	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Artichokes,												
Chinese . . .			*									
Globe . . .		†	*	*								
Jerusalem . .			*									
Asparagus . .			*	*	*							
Beans, Broad . .		*										
Kidney or												
French . . .			*	*	*							
Runner . . .					*							
Beetroot . . .			*	*	*				*			
Borecole or Kale			*	*	*							
Broccoli . . .			*	*	*							
Brussels Sprouts		*	*	*	*							
Cabbages . . .			*	*	*			*				
Carrots . . .		*	*	*	*			*				
Cauliflower . .		*	*	*	*			*				
Celery . . .		†	†	*	*			*				
Leeks . . .		*	*	*	*		*	*	*			
Onions . . .	*	*	*	*	*			*				
Parsnips . . .		*	*	*	*	*						
Peas . . .		*	*	*	*	*						
Potatoes . . .		*	*	*	*							
Salsify . . .			*	*	*							
Savoys . . .			*	*	*							
Seakale . . .		*	*	*	*							
Shallots . . .		*	*	*	*	*	*	*	*			
Spinach . . .			*	*	*	*	*	*	*			
Turnips . . .			*	*	*	*	*	*	*			
Vegetable												
Marrows . . .				†	*							

In the above table, the †'s denote when to sow under glass and \*'s when to sow in the open.

### VEGETABLE SEEDS: AVERAGE GERMINATION

According to a Ministry of Agriculture pamphlet the following figures have been carefully checked and tested.

Name of Vegetable	Germination Per Cent	Name of Vegetable	Germination Per Cent
Beans ; Broad, French		Lettuce . . . . .	88
Kidney and Scarlet		Mustard and Cress . . . .	80
Runners . . . . .	90	Onions . . . . .	75
Beetroot . . . . .	70	Parsnips . . . . .	25-30
Broccoli . . . . .	80	Peas . . . . .	80
Cabbage . . . . .	80	Radishes . . . . .	80
Carrots . . . . .	55	Salsify . . . . .	90
Cauliflower . . . . .	80	Spinach . . . . .	70
Celery . . . . .	50	Tomatoes . . . . .	80
Kale . . . . .	80	Turnips . . . . .	75
Kohl Rabi . . . . .	80	Vegetable Marrow . . . .	80
Leeks . . . . .	60		

## ROTATION OF CROPS

This table shows what crops a certain vegetable may follow and what it may *not* follow. It also indicates what crops a vegetable may be followed by and the crops that should not come after it.

Principal Crop	Crops it may follow	Crops it may not follow	Crops it may be followed by	Crops it may not be followed by	Catch-crops which may be planted between rows
Beans	Asparagus, borecole, broccoli, cabbages, turnips, parsnips, carrots, potatoes	*Leguminous plants of its own natural order, <i>i.e.</i> , peas, etc.	Beet, carrots, celery, leeks, lettuce, parsnip, salsify, turnip, and any of the cabbage tribe	*Leguminous plants of its own natural order, <i>i.e.</i> , peas, etc.	Borecole, brussels sprouts
Beet	Cabbage tribe, and any crops but those specified in next column	Spinach, turnips, parsnips, carrots, salsify, and scorzonera	Peas, beans, cabbages, cauliflower, lettuce, onions and any spring-sown crop except those in next column	Spinach, turnips, parsnips, and carrots	Nothing
Borecole and Brussels Sprouts	Peas, beans, let-tuces, potatoes	*Cruciferous plants of own order, <i>i.e.</i> , any of cabbage tribe, turnips, etc.	Peas, beans, beet, carrots, parsnips, onions, pota-toes, kidney beans, celery, salsify, leeks, lettuce, endive, shallots, spinach	*Cruciferous plants of own order, <i>i.e.</i> , any of cabbage tribe, turnips, etc.	Beans
Broccoli	Peas, beans, kidney beans	*Cruciferous plants of own natural order	Any crop to be sown or planted when cleared off	*Cruciferous plants of own natural order	Nothing
Cabbages	Peas, beans, kidney beans, potatoes, lettuces, onions, leeks, celery, etc.	*Cruciferous plants of own natural order	Peas, beans, kidney beans, potatoes, lettuces, car-rots, parsnips, beet, sal-sify, celery, sea-kale, onions, leeks, radishes, endive, shallots, spin-ach, etc.	*Cruciferous plants of own natural order	Coleworts
Carrots and Parsnips	Cabbage tribe and any crops except those in next col-umn	Any crops except rootcrops and belliferous plants, as celery, parsley, etc.	Any crops except those in next column	Any crops except root crops and *umbelliferous plants, as celery, parsley, etc.	Nothing
Cauli-flower	Peas, beans, pota-toes, celery, kid-ney beans, onions, carrots, lettuces, beet	*Cruciferous plants of own natural order	Peas, beans, potatoes, celery, kidney beans, onions, carrots, leeks, salsify, endive, shallots, lettuces, beet, parsnip	*Cruciferous plants of own natural order	Spinach, lettuces, endive

Principal Crop	Crops it may follow	Crops it may not follow	Crops it may be followed by	Crops it may not be followed by	Catch-crops which may be planted between rows
Celery	Any crop except those in next column	Parsnips, carrots, parsley	Peas, beans, kidney beans, onions, potatoes, turnips, and any of the cabbage tribe	Parsnips, carrots, parsley	Lettuces, endive, dwarf early peas, French beans
Endive and Lettuce	Asparagus, potatoes, peas, beans and any of the cabbage tribe	Chicory, salsify, scorzonera, artichokes, cardoons, and any plants of the natural order * <i>Compositæ</i>	Peas, beans, potatoes	Chicory, salsify, scorzonera, artichokes, cardoons, and any plants of the natural order * <i>Compositæ</i>	Nothing
Kidney Beans and Peas	Potatoes, carrots, parsnips, turnips, broccoli, and any of the cabbage tribe	Beans and *leguminous plants of own natural order	Broccoli, cabbages, of any kind, spinach, turnips, potatoes, late celery, parsnips, beet, salsify, onions, leeks, lettuce, endive, shallots	Beans and *leguminous plants of own natural order	Summer spinach, radishes, lettuce, broccoli, turnip, early carrots; borecole and brussels sprouts and between dwarf sorts
Leeks, Onions, Shallots, etc.	Cabbage tribe, celery, potatoes, peas, beans, kidney beans, lettuce, endive, spinach	Garlic, chives, and any crop of the onion tribe	Cabbages, carrots, celerworts, celery, cauliflower, parsnips, potatoes, peas, beans, beet	Garlic, chives, and any crop of onion tribe	Nothing
Potatoes	Any crop except those specified in the next column	Carrots, parsnips, beet, salsify, scorzonera	Any crop requiring a loose, clean, well-worked soil, and all *cruciferous plants, peas, beans, etc.	Root crops generally, as carrots, parsnips, beet, etc.	Brussels sprouts, cabbages, borecole, broccoli, and late celery if there is space enough for trench
Seakale	Potatoes, peas, beans, carrots, parsnips, beet, celery, etc.	*Cruciferous plants of own natural order	Potatoes, peas, beans, carrots, parsnips, beet, celery, etc.	*Cruciferous plants of own natural order	Nothing
Spinach	Peas, beans, kidney beans, cabbage, cauliflower, lettuce, etc.	Beet	Peas, beans, kidney beans, cabbage, cauliflower, lettuce, etc.	Beet	Nothing
Turnips	Potatoes, spinach, peas, beans, lettuce, etc.	*Cruciferous plants of own natural order	Potatoes, spinach, peas, beans, lettuce, beet, carrot, parsnip	*Cruciferous plants of own natural order	Nothing

\*NOTE.—To save space in the table, the above group names have been used and are here explained.

*Crucifera*.—Cabbage, cauliflower, broccoli, colewort, turnip, radish, cress, seakale, mustard, horse-radish.

*Leguminosa*.—Peas, beans.

*Umbellifera*.—Carrot, parsnip, Jerusalem artichoke, scorzonera, salsify, endive, lettuce, chibory.

*Compositæ*.—Globe artichoke, Jerusalem artichoke, scorzonera, salsify, endive, lettuce, chibory.

# MANURING

## Quantities and

(Area

NOTE.—A Dressing of 3 qrs. per  $\frac{1}{4}$  acre is equal to 2 lb. to the Square Rod, or 1 oz. to the farmyard manure, which is applied in the Autumn or Spring, according to the

Name of Vegetable	Farmyard Manure	Artificial Fertilizers*
Beans . . . .	Moderately heavy, 3-4 tons	Basic Slag 3 qrs. Vegetable or Wood Ashes 3 qrs.
Beetroot . . . .	Organic manure for preceding crop only	Ammonium Sulphate $1\frac{1}{2}$ qrs. Potash Salts $1\frac{1}{2}$ qrs. Peruvian Guano 2 qrs. Salt $2\frac{1}{2}$ qrs. Steamed Bone Flour $2\frac{1}{2}$ qrs. Nitrate of Lime $1\frac{1}{2}$ qrs. Sulphate of Potash 1 qr. Ammonium Sulphate $1\frac{1}{2}$ qrs. Kainit 3 qrs.
Cabbage (including Broccoli, Brussels Sprouts, Cauliflower, Kale, etc.)	Moderately, 3 tons	Salt $2\frac{1}{2}$ qrs.
Carrots . . . .	Organic manure for preceding crop only	Ammonium Sulphate $1\frac{1}{2}$ qrs. Potash Salts $1\frac{1}{2}$ qrs. Salt $2\frac{1}{2}$ qrs. Ammonium Sulphate $1\frac{1}{2}$ qrs. Potash Salts $1\frac{1}{2}$ qrs. Steamed Bone Flour 3 qrs. None necessary
Celery . . . .	Moderately, 3 tons	Ammonium Sulphate $1\frac{1}{2}$ qrs. Potash Salts $1\frac{1}{2}$ qrs. Salt $2\frac{1}{2}$ qrs.
Leeks . . . .	Moderately, 3 tons	Ammonium Sulphate $1\frac{1}{2}$ qrs. Potash Salts $1\frac{1}{2}$ qrs. Steamed Bone Flour 3 qrs.
Lettuce . . . .	Moderately, 3 tons	None necessary
Onions . . . .	Moderately, 3 tons	Ammonium Sulphate $1\frac{1}{2}$ qrs. Kainit 3 qrs.
Parsnips . . . .	Organic manure for preceding crop only	Soot 1 cwt.
Peas . . . .	Moderately, 3 tons	Ammonium Sulphate $1\frac{1}{2}$ qrs. Kainit 3 qrs. Basic Slag 3 qrs. Potash Salts 1 qr. or Wood or Veg. Ashes 3 qrs. Nitrate of Soda $1\frac{1}{2}$ qrs.
Potatoes . . . .	Fairly heavily, 5 tons	Ammonium Sulphate $1\frac{1}{2}$ qrs. Basic slag 3 qrs. Potash Salts $1\frac{1}{2}$ qrs. or Wood or Veg. Ashes 3 qrs.
Radishes . . . .	Moderately, 3 tons	None necessary
Spinach . . . .	Moderately, 3 tons	(a) Ammonium Sulphate $1\frac{1}{2}$ qrs. (heavy soil) or (b) Nitrate of Soda $1\frac{1}{2}$ qrs. (light soil)
Turnips . . . .	Organic manure for preceding crop only	Ammonium Sulphate $1\frac{1}{2}$ qrs. Kainit 3 qrs. Steamed Bone Flour 3 qrs.

\* In each case, all the fertilisers quoted should be used if the

## VEGETABLES

### Times to Apply

$\frac{1}{2}$  acre)

the Square Yard. Unless otherwise stated, the artificial manures are given in addition soil; heavy in Autumn, light in early Spring.

When to apply Artificial Fertilizer	Remarks
Autumn and Winter Spring	No farmyard manure is needed unless the soil is exhausted. On heavy soil substitute 2 qrs. of Superphosphate for the Basic Slag, and apply when the crop is maturing.
Spring. When sowing	Soil should have been well manured with organic matter for previous crop, which crop should not have been a root one.
Spring. When sowing	Farmyard manure should be well dug in in Autumn in heavy soil, or in early Spring in light soil. On light soil Nitrate of Soda should be substituted for the Nitrate of Lime.
Before sowing	Soil should have been well manured with organic matter for previous crop, which crop should not have been a root one. On heavy soil substitute 1 qr. of Sulphate of Potash for the Kainit and apply early in Spring.
When growing	Farmyard manure should be well dug in in Autumn in heavy soil or in early Spring in light soil.
When growing	Farmyard manure should be dug in in Autumn in heavy soil or in Spring in light.
When growing, as top-dressing	
Early Spring	
Spring. When sowing	
Spring or Autumn, according to soil	
When growing	
When sowing	
When growth commences	
When growing	
When sowing	
When growth commences	
When growing	
When sowing	
Spring or Autumn according to soil	The farmyard manure should be well dug in in Autumn in heavy soil or in Spring in light soil. On heavy soil 1 qr. Sulphate of Potash should be substituted for the Kainit, and applied in early Spring.
When growing	Soil should have been well manured for previous crop, which should not be a root one.
When sowing	No farmyard manure is needed unless soil is exhausted. On heavy soils 2 qrs. Superphosphate should be substituted for the Basic Slag, and applied when the crop is maturing.
Spring or Autumn according to soil	Soil should be deeply worked and the farmyard manure incorporated in the Autumn. On heavy soil 2 qrs. Superphosphate should be substituted for the Basic Slag, and applied when the crop is maturing.
Autumn and Winter	
Spring, when sowing	
When growing	
When planting	
Autumn or Winter	
When preparing soil	
(a) When sowing	No artificial should be necessary if the farmyard manure has been dug in.
(b) When growing	
When sowing	Soil should have been well manured for previous crop, which should not have been a root one. On heavy soil substitute 2 qrs. Superphosphate for the Steamed Bone Flour and apply when the crop is maturing.
Autumn or Spring, according to soil	
When growth begins	

best results are desired. One fertiliser is, however, better than none.



## BLANCHING—EARTHING-UP

### BLANCHING VEGETABLES

Such vegetables as celery, leeks, seakale, cardoons, chicory, endives and lettuces, require blanching to be made tender and to have the green colouring matter and consequent bitterness removed from them. The first two of these are blanched by the process of earthing-up, which is dealt with below. Seakale is blanched under pots prepared for this purpose, and covered over with litter, sand, ashes or leaves.

With endive it is best to place over each plant, when full-grown, a large tile or slate, which will effectually exclude all light and blanch the endive in a few days. With lettuces there is no better plan than tying.

### EARTHING-UP

This consists in the drawing up of soil about the stems or stalks of any growing plant, as, for example, peas, beans, potatoes, celery, leeks, and many other plants. It induces the growth of rootlets from the stem in some cases, and affords greater shelter for the roots. It is desirable also to draw up the soil round the stalks of cabbages of all kinds. See also Blanching.

### SALAD GROWING AT A GLANCE

Name	When to Sow or Plant.	Amount of Seed or Roots required for 50 ft. Row.	Depth to Sow or Plant in Inches.		Time of Germination in Days	Time to reach Maturity in Weeks
			Light Soil	Heavy Soil		
Chicory .	April-June	$\frac{1}{4}$ oz.	1	$\frac{3}{4}$	6-15	25
Corn Salad	Feb. - March and Aug.-Oct.	$\frac{1}{2}$ oz.	$\frac{1}{2}$	$\frac{1}{4}$	9	10
Cress . .	April-Sept.	1 oz. for 2 square yards	$\frac{1}{2}$	$\frac{1}{8}$	5	1 $\frac{1}{2}$
Cucumber	Feb.-May	4 Seeds for every Plant required	1	1	7-14	15
Dandelion	March-June	$\frac{1}{4}$ oz.	$\frac{1}{2}$	$\frac{1}{4}$	7-10	32
Endive .	May-Aug.	$\frac{1}{4}$ oz.	1	$\frac{1}{4}$	6-12	16
Lettuce .	March-Aug. (Open) Jan.-March (Glass) Aug.-Oct. (Glass)	$\frac{1}{4}$ oz.	$\frac{3}{4}$	$\frac{1}{2}$	6-12	10
Mustard .	April-Sept.	1 oz. for 1 square yard	$\frac{1}{2}$	$\frac{1}{8}$	5	1 $\frac{1}{2}$
Radish .	Feb.-Sept. (Open) Oct.-Feb. (Frame)	$\frac{1}{2}$ oz.	1	$\frac{1}{4}$	6	7

## MUSHROOMS

**Compost.**—Success with mushrooms demands little more than a supply of horse manure, and a certain degree of warmth and moisture.

If the manure when crushed in the hand binds, but no excess liquid is pressed out, it contains the required proportion of moisture.

During the months of summer and autumn, mushrooms may, perhaps, most conveniently be grown in the open air, but during late autumn, winter, and spring, some building or frame is necessary.

**The Bed.**—Six to nine weeks must generally be allowed from the commencement of operations to the gathering of a crop.

The longest litter should be first shaken out of the manure, all up to the length of about a foot being retained. This should then be made up into a heap about 2 or 3 feet high and from 4 to 6 feet wide, and is best made on a gentle slope.

In winter-time, this heap should be made up under cover, or the heat will too quickly evaporate. Every second day, the heap should be thoroughly turned, so as to bring the central portion to the surface and the surface to the centre, and during this process all lumps should be broken up. This turning should be continued for about a week in winter and for about two weeks in summer. The manure should then be placed in position, being well trodden down. The temperature of the heap should be taken by means of a thermometer plunged to a depth of about 8 inches.

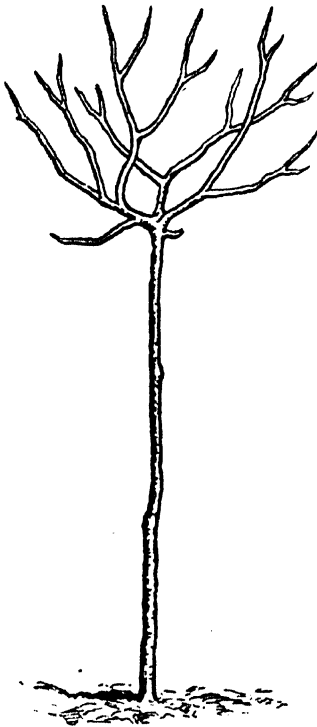
**The Spawn.**—When this temperature reaches about 75° or 80°F., the spawn, which must be fresh and which is bought in bricks composed of a mixture of manure and soil containing dry mycelium of the mushroom, should be inserted in pieces about 2 inches square. These pieces should be firmly planted by means of a trowel, about 2 or 3 inches deep in the manure and about 8 inches apart. The heap of manure is then at once covered with about 2 inches of well-sieved, sandy loam. Old garden soil is totally unsuitable for the purpose. This soil should be just, and only just, moist enough to hold together, and should be beaten firm with the flat of the spade. The whole must then be covered over with a layer of straw, 15 inches in thickness, or with other material to exclude all light.

## MUSHROOMS

Additional protection should be afforded by mats or sacking, if the spawn is planted in winter.

**Care of the Bed.**—Until the mushrooms begin to come up little or no water should be given to the bed. As soon as the mushrooms appear, however, a moderate supply of tepid water may be given once a week, and it will be found that a little common salt, or, better still, saltpetre, will be beneficial. So far as possible, the temperature of the air of the building in which mushrooms are being grown should be kept at from 55° to 60°F. If the bed is to retain its health mushrooms should not be cut, but should be twisted off, separating the stalks as near the base as possible. Fresh soil must be added to fill the holes made by picking, and the bed must again be covered with straw.

**Pests.**—Woodlice play great havoc in mushroom beds. Traps baited with carrot or potato will do much to keep this pest down.



STANDARD.

# FRUIT GROWING

## FORMS OF TREE

**Standard** —This is a good form for apples, pears, plums, and cherries. It is most suitable for orchards.

**Half-standards** —These are similar in form to standards, except that the main stem up to the first branch is only  $4\frac{1}{2}$  feet high instead of the 6 feet in the standard.

**Bush and Pyramid Trees.**—Both these types are formed in much the same way, except for the fact that the pyramid has a central stem, running as straight as possible up the middle of the tree, from which the side shoots spring, while the bush tree has no central stem but branches from the side shoots, the middle being kept clear. The bush and pyramid forms are suitable to apples, pears, plums, and cherries.

**Fan.**—The fan is shaped with radiating branches like a fan, and, like the espalier, may stand away from or against a wall. Where it has support from a wall it may be much larger than where it has merely artificial trellises. The fan shape is excellently suited to plums, apricots, and Morello cherries.

**Espalier.**—The espalier has a central stem, from which branches extend horizontally sideways, giving the tree the form of a double ladder. Each of these branches is treated as a cordon and restrained to its one main stem, all side shoots being removed. There should be a space of a foot or 18 inches between the tiers of branches. Where it stands by itself a maximum height of five or six tiers is quite large enough, but where the tree is grown against a wall its size is practically only limited by the available space. Practically any fruit that can successfully be trained as a cordon or bush may also be grown as an espalier. This system does not suit apricots, cherries or plums.

**Cordon.**—Here the fruit is borne on either side of one or two main stems, all branches but the main ones being rigorously suppressed. The cordon assumes three directions—the horizontal, the vertical or upright cordon, and the oblique cordon, which is mostly grown at an inclination of 45 degrees to the ground level. The cordon system of training trees on supports is applicable to the apple in open ground; and to pears, apricots, gooseberries and currants, red or white, on walls or wires.

## **FRUIT GROWING—PLANTING**

### **SELECTING THE VARIETIES**

Many of the best varieties of apples, cherries, pears, plums, are self-sterile, that is to say, they cannot fertilize their flowers with their own pollen, but require the pollen from another variety of the same kind of tree to enable them to set their fruit.

In selecting fruit trees for a garden or orchard, it is, therefore, necessary to have more than one variety of each particular kind of fruit. There are a few self-fertile varieties and if regular crops are required great care is needed in the selection of fruit trees.

### **PLANTING FRUIT TREES**

Fruit trees may be planted between early November and March, but the best time is November. Planting should, if possible, cease before mid-December, to be continued if necessary, late in February. In very heavy soils spring planting has certain advantages. When trees are planted in spring, especially on light soils, it is absolutely necessary to keep the ground continuously moist by frequent watering and surface mulching.

Care must be taken never to plant during frost, or when the ground is wet and sticky. If the latter condition prevails when the trees arrive they must be "laid in" by the roots in a sheltered position until the weather is suitable for planting.

In frosty weather the trees cannot be "laid or heeled in"; they should be kept in a frost-proof shed and the roots protected with sacking or paper.

Standards are best planted when three to four years old; half-standards as "two-year-old feathered trees," that is, "maidens" not pruned during the winter after their formation; bushes and cordons as "maidens," that is, trees that have made a year's growth after budding or grafting. Espaliers and fan-shaped fruit trees should be from three to four years old, while bush fruit, such as currants and gooseberries, should have made two years' growth after being struck as cuttings.



M.M.S.

LEUCORUM AESTIVUM.

[C. Jones.

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## PLANTING FRUIT TREES

The roots are pruned by having all the very small fibres removed and the larger roots shortened to about 6 inches from the stem. Bruised or broken roots should be removed entirely by a clean, sharp cut outwards and upwards. Two or three spurs are sufficient, but if there are more good ones they may remain after being carefully pruned. Should the roots be dry, soak them well in water, then plant immediately.

The site for the tree is prepared by digging out a hole about 3 feet in diameter, and 2 feet in depth, in ground that has been well drained. In the bottom of this pit lay 10 or 12 inches of brick or lime rubbish, the roughest material at the bottom, and ram it pretty firmly so as to be impervious to the tap-root. The remainder of the pit should be filled in with earth. The tree should be placed upright in the centre of the hole and the lowest roots should be laid out horizontally. Fine earth should then be loosely thrown over them, and carefully pressed firmly over them. The next layer of roots should be treated in a like manner and so on until the whole of the roots are covered. It is most important that the rootlets should, as far as possible, assume their natural position. It is also most important to make the soil firm at each stage of the planting in order to minimise the depth to which the tree will sink. Firm planting is necessary in any soil and in light land it may be necessary to use a rammer.

Deep planting is fatal. Trees on strong-growing stocks should be planted to about the same depth as in the nursery garden ; this depth can be seen from the marks on the stem. Fruit on dwarfing stocks, however, should be planted so that the union of stock and scion is just below the soil.

## STAKING AND TYING

The tree should be supported with a strong stake reaching to the lowest branch but not higher, driven firmly into the ground, before the earth is filled in round the roots, and the stem tied to it with soft cord, after surrounding the stem with hay or straw, or even a wrapping of old felt, so that the string will not cut into the bark. This cord should be renewed annually. The stake should be rounded so as not to chafe the tree, and should have the lower 2 feet treated with creosote or tar. Water well after planting if the weather is dry, and apply a mulch of stable manure.

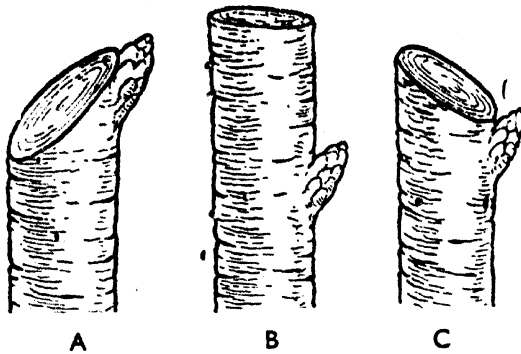


# **FRUIT GROWING DISTANCE APART TO PLANT**

Form	Between Rows	Between Trees or Bushes in Row	Most Suitable Aspect	Best Soil	When to Plant	Best Age to Plant	When to Prune	Time and Method of Propagation
<b>APPLE</b>								
Standard	30 ft.-40 ft.	30 ft.-40 ft.	Any; open best	Medium, Moist Loam on stiff Sub-soil; Sandy Loam	Oct. and Nov. Feb. and March	2 years 2 years 3 years 1-3 years 1-3 years Maiden Maiden Maiden	Winter-pruning March, Newly planted; Dec. and Jan. Established; Summer-pruning July and Aug.	Budding, July; Grafting, March and April
Pyramid	30 ft.-40 ft.	30 ft.-40 ft.						
DwarfPyramid (Fuseau)	15 ft.-20 ft.	15 ft.-20 ft.						
Espalier	6 ft.-8 ft.	6 ft.-8 ft.						
Bush	12 ft.-30 ft.	12 ft.-30 ft.						
Cordon	6 ft.-8 ft.	6 ft.-8 ft.						
" Double, Vertical	6 ft.-8 ft.	6 ft.-8 ft.						
Blackberry and Hybrids	6 ft.-8 ft.	12 ft.-16 ft.	Any	Any Soil	Oct.-Feb.	1 year	May; After Fruit is Gathered	Cuttings or Layers, March
<b>CHERRY</b>								
Standard	30 ft.-40 ft.	30 ft.-40 ft.	East, South and West	Light, Sandy Loam, Chalky Soil	Oct.-Feb.	1-2 years 1-2 years	Winter-pruning, Sept.-Oct.; Summer-pruning, May-July	Budding, July and Aug.; Grafting, March
Fan	6 ft.-8 ft.	18 ft.-20 ft.						
<b>CURRENTS</b>								
(Red and White)								
Bush	5 ft.-6 ft.	5 ft.-6 ft.	Any	Good Loam	Oct. or Nov.	2 years 2-4 years 2 years 2-3 years	Winter-pruning, Sept.-Oct.; Summer-pruning, July	Cuttings, Oct. (Open)
Espalier	5 ft.-6 ft.	5 ft.-6 ft.						
Cordon	5 ft.-6 ft.	5 ft.-6 ft.						
" Single	5 ft.-6 ft.	5 ft.-6 ft.						
" Double	5 ft.-6 ft.	5 ft.-6 ft.						
" Treble	5 ft.-6 ft.	5 ft.-6 ft.						
(Black) Bush	5 ft.-8 ft.	4 1/2 ft.-6 ft.		Cool, Moist and Rich		1-2 years		

# **FRUIT GROWING** **DISTANCE APART TO PLANT (continued)**

Form	Between Rows	Between Trees or Bushes in Row	Most Suitable Aspect	Best Soil	When to Plant	Best Age to Plant	When to Prune	Time and Method of Propagation
GOOSEBERRY								
Bush . . . . .	5 ft.-6 ft.	5 ft.-6 ft.	Any	Medium Loam	Oct. and Nov.	2 years 2 years 2 years 2 years 2 years	Winter-pruning, Jan.; Summer-pruning, July	Cuttings, Oct. or March (Open)
Espalier . . . . .	5 ft.-6 ft.	5 ft.-6 ft.						
Fan . . . . .	5 ft.-6 ft.	5 ft.-6 ft.						
Cordon, Single . . . . .	5 ft.-6 ft.	5 ft.-6 ft.						
" Double . . . . .	5 ft.-6 ft.	5 ft.-6 ft.						
" Treble . . . . .	5 ft.-6 ft.	5 ft.-6 ft.						
PEARS								
Standard . . . . .	18 ft.-25 ft.	18 ft.-25 ft.	Any; East and West for Wall Trees	Deep Loam on Clay Sub-soil	Oct.-Feb.	2 years 2 years Maiden Maiden 4-5 years 4-5 years Maiden 2-3 years	Winter-pruning, Early Spring; Summer-pruning, July	Budding, July and Aug.; Grafting, March and April
Half-standard . . . . .	18 ft.-25 ft.	18 ft.-25 ft.						
Dwarf Pyramid (Fuscau) . . . . .	6 ft.-8 ft.	3 ft.-6 ft.						
Bush . . . . .	12 ft.-15 ft.	12 ft.-15 ft.						
Espalier . . . . .	5 ft.-6 ft.	5 ft.-6 ft.						
Grid-iron (Wall or wire trained) . . . . .	5 ft.-6 ft.	6 ft.-8 ft.						
Cordon, Single . . . . .	6 ft.-8 ft.	2 ft.-15 ft.						
" Double . . . . .	6 ft.-8 ft.	5 ft.-6 ft.						
PLUMS								
Standard (Strong) . . . . .	20 ft.-30 ft.	20 ft.-30 ft.	Any; South or West for Wall Trees	Strong, Well-drained Loam, not too Deep, containing Lime and Chalk	Oct.-Feb.	2-3 years Maiden (Form head when and where desired) 4-5 years (already trained)	Winter-pruning, Early Spring; Summer-pruning, July-Aug.	Budding, July; Grafting, March
Half-standard (Moderate) . . . . .	15 ft.-20 ft.	15 ft.-20 ft.						
Pyramid . . . . .	15 ft.-20 ft.	15 ft.-20 ft.						
Bush . . . . .	12 ft.-15 ft.	12 ft.-15 ft.						
Fan . . . . .	15 ft.-18 ft.	15 ft.-18 ft.						



MAKING THE CUT.

The perfect cut (*A*) begins on the side of the shoot opposite the selected bud, slants slightly upwards, and ends just above the tip of the bud. In *B* (incorrect), the cut is made too far above the bud; if cut as in *C* (incorrect) the bud will be weakened.

## PRUNING FRUIT TREES

In pruning a fruit tree there are three main objects at which to aim. The first is to promote healthy growth of wood; the second to give the form desired.

These two are attained by the same means; first, the tree is

shaped in such a way that when fully grown it may be well balanced according to its natural habit; secondly, the branches are so thinned as to allow of perfectly free circulation of air and light; and thirdly, the tree is helped to produce good vigorous shoots, and thus to come to maturity as soon as possible, by means of judicious cutting back of weak shoots and shortening of strong ones. The third main object is the increase of fruitfulness.

The first thing to be done before undertaking the operation of pruning is to study the trees to be dealt with, and make up your mind clearly as to what effect you wish to produce. Where you are dealing with young trees it is certainly not a good plan to prune for fruit.

It is important that the cut should be made as nearly as may be straight; it should not leave a surface slanting upwards from below the bud, with its lower edge below the spring of the bud and its upper on a level with it. The perfect cut begins on the side of the shoot opposite to the selected bud, and slants ever so slightly upwards across the shoot till it ends immediately above the tip of the bud. It should be clean and unbruised. Always prune back to a wood bud, not a fruit bud, and see that the bud faces in the right direction, that is, usually outwards. If it is necessary to cut away a branch altogether, no portion of it should be left on the main stem. The cut should be as nearly perpendicular as possible, smooth, and slightly bevelled, thus presenting the smallest possible extent of wounded surface. To avoid tearing

## PRUNING FRUIT TREES

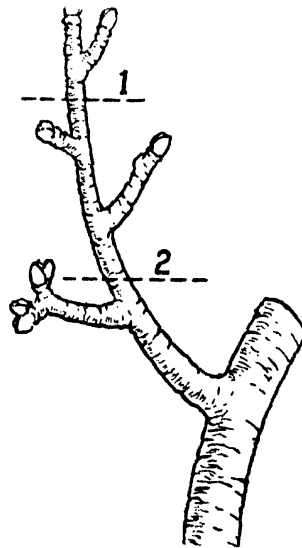
the bark, should the branch fall before it is completely severed, it is wise to make a small cut on the underside of the branch before the main cut from above is commenced. Where the cut surface is very large it should be covered with the composition known as "grafting" mastic.

### FRUITS AND THEIR METHOD OF BEARING

Fruit	Bearing on one-year-old wood	Bearing on wood more than one-year-old	Best Time to Prune
Apple . . . . .	—	*	Winter
Cobnut and Filbert .	—	*	Winter
Currant (Black) . . .	*	—	Autumn
"    (Red and White) .	—	*	February
Gooseberry . . . . .	*	*	Late Spring or Winter
Loganberry . . . . .	*	—	Autumn
Peach and Nectarine .	*	—	Late Spring or Early Autumn
Pear . . . . .	—	*	Winter and Summer
Plum and Damson . .	*	—	Late Spring or Early Autumn
Raspberry . . . . .	*	—	Winter and Late Spring

\* Indicates the method of bearing of each kind of fruit.

**Distinguishing between Fruit Buds and Leaf Buds.**—It is an essential but easy matter to differentiate between fruit buds and leaf buds; the latter are thin and pointed and usually spring from the end of a spur, while the fruit buds are globular and have a plump appearance and generally sprout from the old wood and from near the base of the young shoot. In summer the fruit buds are surrounded by a cluster of leaves. Several of these fruit buds will be found in the fruit spur, a short shoot springing naturally from the old wood and usually terminating in a leaf bud. Fruit-spurs may be encouraged by summer-pruning.



**THINNING FRUIT-SPURS.**

First year, cut back to 1.  
Second year, cut back to 2.

## PRUNING FRUIT TREES

After a few years the fruit spurs are likely to have grown too big and may need thinning, or the fruit will gradually decrease in size. This thinning is accomplished in two stages, as shown in the diagram, page 197.

**Time to Prune.**—Young trees should be pruned before the buds have burst, but when they are well swelled and plump. When this state is reached—that is to say, the end of February or the very beginning of March in ordinary years—the pruner can select the best bud and cut back to that without fear that the bud will dry up or become blind. Where young trees are concerned any summer-pruning beyond that absolutely necessary to keep them in shape should be barred. Where the new growth shows some defect in shape, it may be removed in summer, but the less done in this way the better. Only very hardy and well-established trees should be pruned actually during winter.

**Established Trees.**—Broadly speaking, the rapid formation of leaves and wood is adverse to the production of fruit. On the other hand, a certain amount of leaf growth is necessary for the proper nourishment of the fruit and the tree itself. On the whole the slow growth of wood favours the production of fruit and blossom, and should be the end to be aimed at.

Where trees have been summer-pruned, winter-pruning will consist in little more than cutting back laterals to within two or three buds of their base and in shortening the main shoots back to a good leaf bud.

**Standards, Bush Fruits and Pyramids.**—In the case of these forms, it is merely necessary to keep the trees in shape, usually cutting back to an outward-facing bud so that the resulting shoot may grow out from the centre of the tree, to admit of plenty of air space.

**Espaliers, Cordons, etc.**—In these trees the “leaders” should be allowed to grow until they have reached the desired length. All laterals should have been pinched-back in summer (see Summer-pruning), and must again be winter-pruned to one or two buds. In trees trained up against a wall any shoots growing out to the front must be cut right out.

**Newly-planted Trees.**—A young and vigorous tree should have its branches shortened to about one-third of their length. Where the planting is done fairly late in the season the neces-

## PRUNING FRUIT TREES

sary pruning may be done at once ; where it is early the operation may well be deferred for a week or two, that the buds may be past the danger of drying up, and the best ones may be more easily selected. Thin-out all the feeble shoots, so selecting them that the head when finished may be balanced and evenly filled. The remaining one-year shoots should then be cut back to a good bud, care being taken to see that it is so placed on the stem, inwards or outwards, that the shoot produced from it may occupy a suitable position in the general " design " of the tree.

A great deal also depends on the judgment of the pruner in the matter of the amount to be cut from the young tree. The leaves and roots are interdependent ; if the leaves are too few the root growth will be feeble ; if they are too many the roots will be unable to feed them properly. The amount varies with the kind of tree. (See also articles under each individual fruit.)

**Summer-pruning.**—The trees should be gone over on two or three occasions in summer, and the soft ends of the side-shoots should be pinched off to about three leaves with the finger and thumb nail, a few at a time. This, if done too early, will result in fresh sub-lateral shoots being formed from the upper buds, which must again be pinched back to one leaf, making four in all. Leading shoots should never be summer-pruned. The best time to summer-prune varies with the variety of tree, with the soil and with the climate. Fruit on light soil can usually be pruned in July ; trees on heavier land being treated a month later. Prune early enough to prevent shoots from making excessive growth, but not so early that a mass of sub-laterals are formed. Black currants, raspberries, and all Morello cherries, must not be summer-pruned.

The above remarks on summer-pruning refer to all forms of fruit trees except the standard ; this latter it is inadvisable to summer-prune.

## PRUNING FRUIT TREES

### ROOT-PRUNING

This should not be needed where the trees have been grown on proper stocks and have been well looked after while young, but as a remedial measure where trees have, as it were, got out of hand, it has great uses and is best carried out in early autumn.

**Established Trees.**—The process of root-pruning large, established trees is a rather difficult matter, and is best done towards the end of the season, when the leaves are still on the trees. A trench, some 3 feet wide and 2 to 3 feet deep, is dug round the tree to be operated upon; the fibre roots should be preserved intact, tied together in bundles, and covered with sacking to keep them from being dried up by the sun or exposure to the air. All strong roots over an inch in diameter are cut off, care being taken to make the cuts upward. A very sharp spade should then be driven horizontally under the tree, and  $1\frac{1}{2}$  feet below the base, to sever downward-striking roots. This completes the work, and the trench should then be filled up with good loam, mixed, if possible, with some spent manure. If it is found that the fibrous roots are not very numerous it will be advisable only to root-prune one side of the tree at a time, the other side being operated upon in the following autumn.

Should the tree be of considerable size the branches must be reduced, and side-shoots should be cut-in before root-pruning is attempted.

**Newly-planted Trees.**—These should be completely lifted out of the ground and transplanted. This process will in itself be sufficient root-pruning and should be done to those trees whose summer growths are numerous and fruit buds few.

Never root-prune unless it is quite obvious that the operation is a necessity. A sharp spade should be used in lifting the young tree, so that the rootlets may be cut cleanly and not broken and bruised, and all cut ends should be trimmed with the knife before replanting.

Tap-roots which are striking straight downwards may be removed before the tree is replaced.

## PRUNING FRUIT TREES

### APPLES

**Established Trees : Winter Pruning.**—This can be done any time between November and March, but is best done in December and January. Standards should be pruned as little as possible, only sufficient to keep them in shape and form ; dead and diseased wood and all sucker growth must, of course, be cut out. Bushes and pyramids will do best when their main branches are cut back by one-third, while trees trained on walls, espaliers and cordons, require only slight shortening until they have covered the desired space. In all forms, except the standard, laterals should be cut back annually to two or three buds. Short twigs 3 to 4 inches in length need not be pruned back as they will probably carry fruit ; when they have borne fruit they may be cut back to two buds like the more vigorous laterals.

**Established Trees : Summer Pruning.**—This is done twice, in July and August, and again in September, the laterals or side-shoots being pinched back, a few at a time, to five or half-a-dozen leaves. Fresh shoots that develop after the " pinching back " are again stopped to two or three leaves. This applies to all forms of tree, except the standard, which is not summer-pruned.

**Special Treatment.**—Since the varieties of the apple differ so much in habit of growth, what is excellent for one may be bad for another, within, however, the general rules of good pruning. Thus, some of the kinds usually make very strong young growth, and for these, of which *B'enheim Orange*, *Newton Wonder* and *Bramley's Seedling* are typical, after the first four years after planting severe pruning is not advised. These varieties should be lifted at two years old and be replanted, to check their over-vigorous root action. When young they are best checked for their first season by tipping shoots and removing flowers before fruit is formed.

On the other hand the opposite tendency to this is shown by another class, of which *Bismarck*, *Grenadier*, and *Stirling Castle* are types. This kind has a tendency to spend all its early strength on the production of fruit, leaving insufficient nourishment for the formation of healthy young wood. The remedy for this is simply the removal of all fruit formed the first season, and the limiting of the crop in the second.

There are a few apples that bear fruit on the ends of the young wood. In such cases the tree should be pruned with a view to encouraging healthy side shoots. Summer-pruning



## PRUNING FRUIT TREES

will consist in topping crowded shoots in the centre of the fruit tree, also any lateral shoots that it is necessary to shorten to keep the tree in shape. All other shoots should be allowed to grow to provide fruiting branchlets.

**Newly-planted Trees.**—Treat as described on page 199.

**Thinning.**—See page 210.

## APRICOTS

This fruit undoubtedly does best when trained as a fan with its main branches set some 9 inches apart. It will tend to produce spurs, which contain both wood and fruit buds, fruit buds proper borne on short growths not unlike spurs, and true wood buds, which should be thinned out to two, or at the most three, on each spur in April; good young shoots at the base of old wood being retained to train in where there is room between the main branches of the fan as the ends of the main branches tend, as they grow, to diverge from each other. If the laying-in of good young wood is neglected the tree will obviously become thinner and more sparse as it grows. All side shoots from this young wood should be cut back to four leaves in the summer to encourage them to bear fruit buds and spurs.

In winter-pruning, which should be done when the leaves fall, stop all leading shoots and cut back to two or three buds all shoots not required to fill up vacant places on the wall. Useless wood should be cut away and young shoots should be nailed in to replace them. All shoots which push out forwards from the wall should be removed.

## CHERRIES

Because this tree has a tendency to "gum" if much cutting is done, it is best, wherever possible, to form the young tree carefully and then confine all pruning to summer stopping of shoots to five or six leaves, with the finger and thumb. Any further pruning with the knife that is found needful should be done not later than October, laterals being shortened to three or four buds. Should the tree show a tendency to use up its energy in the formation of luxuriant wood and no fruit buds, it should be lifted and replanted.

## APRICOTS—CHERRIES—CURRANTS

It must be remembered that most cherries are self-sterile and more than one variety must usually be planted.

### CURRANTS, RED AND WHITE

**Red and White Currants.**—With these the fruit is on spurs, and consequently, young "lateral" shoots should, early in July, be pinched back to five or six leaves, and in February be cut back to about three buds from the base. The "leaders" should not be cut back by more than one half, and care must be taken to cut back close to a good healthy bud.

Old wood must periodically, though not too frequently, be cut away to permit young shoots to be trained in to take its place.

Do not summer-prune too rigorously at one time. The "leader" must not be summer-pruned. White currants are less vigorous than the red and do not require to be pruned so severely.

**Black Currants.**—These differ from red and white currants in that their fruit is borne on one-year old shoots only. Old wood should, therefore, as far as possible, be cut well back to the base every year, in preference early in the autumn. These young growths, which should be encouraged from the base of the bushes, must, of course, not be summer-pruned, as advised for the red and white currants, as they are the fruit bearers for the next year. Black currants should not be grown on very light soil, and the soil must not be deeply worked between the bushes or the roots will be damaged. The hoe must, of course, be used to keep the weeds down and the soil moist. When the fruit is ripening, the bushes should be netted against birds with muslin or other protective netting.

### DAMSONS

Treat exactly the same as Plums.

## PRUNING FRUIT TREES

### FIGS

The fig may be trained against a wall in a fan-shape, as advised for peaches. As many permanent leaders as are required should be fixed to the wall at from 10 to 15 inches apart ; all unnecessary wood should be removed by disbudding and the fruit-bearing shoots must be stopped back to five or six leaves at the end of August or beginning of September, according to the habit of the tree and the nature of the season. This stopping, the object of which is to induce the formation of fruit for the ensuing season, is a matter of much nicety. A too early stopping with most trees will cause a too early development of fruit, the consequence of which will be that it will not stand through the frost of winter. The fruit for next year must not be much larger than a pea when winter sets in. Other pruning is not much required, except so far as is necessary to maintain the shape of the tree, and to prevent overcrowding. The fruits mature principally on one- or two-year-old wood. Old wood should, therefore be cut out in October where it is possible to train in well-ripened shoots of the previous year's growth. Each year a couple of vigorous young shoots from the base of the tree must be trained up to replace old and worn-out branches. When a tree is not bearing as well as it might be, it should be lifted in October and root-pruned (see Root-pruning, page 200).

### GOOSEBERRIES

The fruit is borne on the young as well as on the two-year-old wood, generally upon small spurs arising along the sides of the branches. Young growths required to form future laterals should, therefore, be allowed to make their full length. Young shoots not needed should, in July, be pinched back to two or three leaves to form fruit spurs. In winter-pruning gooseberries, for which January is a favourable season, cut out the weaker of the young shoots and gradually remove the old wood so as to keep the tree thin of branches, but let those left be trained to some regular shape, and never be permitted to grow across each other. They should radiate in a cup-like shape, if trained as bushes or standards, so as to be 6 or 8 inches apart at the extremities, the centre of the tree or bush being kept open. The young shoots which are retained should merely have their soft ends cut off, just beyond a bud pointing upwards. Main shoots should be shortened down to seven or eight buds and the side-shoots to two or three buds.

## LOGANBERRIES—PEACHES AND NECTARINES

### LOGANBERRIES

The clumps should be thinned-out in Jun and all young shoots except half a dozen should be cut away. Those that remain must be tied up to the supports and not be allowed to straggle over the ground.

As soon as the fruit is gathered, cut out the old branches and tie in the new ones to replace them.

### PEACHES AND NECTARINES

These two fruits are so closely related that the one description will cover the pruning of them both. Because they bear their fruit mainly on the young wood of the previous year, the beginner will often be confronted with the problem of how to remove a sufficient quantity of the old wood after the years' crop, while at the same time leaving enough of it to bear the young shoots for next year, as it does this mostly at the ends of the fruiting shoots.

The inexperienced gardener is rather apt to err on the side of leniency, and consequently his tree, after four or five years, will be found nearly barren, except at the extreme end of its branches. This may be prevented by the simple method of leaving, when the established shoot is disbudded as the spring growth starts, a good wood bud at the base of the shoot as well as one at the top, for this bud at the base will have to replace the fruit-bearing branch when the latter is cut away in the following winter. Should this shoot grow to more than 2 feet in length during the summer, its top must be pinched out. This shortening will probably cause the formation of sub-laterals, which must again be pinched back to one leaf. It is well to leave an "extension" bud at the upper end of the shoot, as it serves a useful purpose in helping to draw up the sap, and thus ensures a full supply of nourishment to the fruit buds on the intermediate part of the branch, but the top bud must be pinched back if it begins to extend too far—that is, shortened back to five or six leaves—and should be cut off with the old wood after fruiting and the lower one left to make the new wood. Buds must, of course, be left on where there are gaps to be filled, and as far as possible, new shoots from the top of the old wood should be trained in to fill these spaces. The cutting out of the old wood may be done at any time after the fruit is removed.

## PRUNING FRUIT TREES

This "disbudding" should be performed gradually, but vigorously, quite five out of every six young shoots will need to be removed. The work should be begun in April, before the buds are an inch long, and should extend over a month. All wood buds which push forward from the wall should be rubbed out, and with them all those which obviously will not easily be made to fill a convenient space in the tree. As soon as the young shoots are long enough to handle, they should be placed in position, some 4 inches apart, and secured. A tree which makes much wood and bears little fruit should not be disbudded too severely. If a good deal of strong young wood is laid in, the tree will soon cease to produce wood buds as freely as before, and a good crop will result. On the other hand, a weakly tree should be sternly dealt with. As soon as the fruit is set, the ground should be well watered, and liquid manure may, with advantage, be given.

The fruit should be exposed to as much air and sunshine as possible; this is done by tying back the foliage that shades it. It is best to thin out the fruit as soon as it is the size of a filbert, starting with the smallest and most crowded on the underside of the branch, and removing a few at intervals of a week or so. A final thinning should be given as soon as the fruit has stoned, so as to leave two peaches to every square foot of wall space, that is, about one fruit on every year-old shoot.

## PEARS

**Summer-pruning.**—The trees should be kept to their regular number of well-spreading branches, each branch kept thin like a cordon, with the side-shoots, which must not be less than 8 inches apart, shortened in July to five or six leaves. This summer-pruning must start from the top of the tree and should be carried out gradually, at intervals of two or three days. Do not stop-back the leading shoots. The Jargonelle pear and one or two other varieties fruit on the tips of the young shoots and not on the spurs. Such varieties should be carefully summer-pruned, only shoots in the crowded centre of the tree being "stopped." Well-placed young shoots should be encouraged to grow and thus form vigorous branch-lets to bear fruit the following season.

## PEARS AND PLUMS

**Winter-pruning.**—This is best carried out in the spring, and consists in cutting the side-shoots back to two or three buds, always cutting back to an outward-pointing bud to preserve a good shape in the tree. All dead wood and any branches growing across other wood must be cut away, and where the fruit-spurs are too numerous for the tree to mature all the crop, or where the fruit is too crowded, some of the spurs should be cut right out ; where spurs have aged and become weak they should also be cut clean away. When the pear is grown as a pyramid or as a trained tree it will require lifting every two or three years to check rampant growth. Standard-trained pears must not be so severely pruned as fruit grown in the cordon, espalier, or bush form.

**Thinning.**—(See page 210).

## PLUMS

The fruit is borne on spurs and on the previous year's wood. It has the habit of producing an intermediate kind of shoot, neither quite a shoot nor quite a spur, which is generally called a "stub." The shoots proper, those which extend from the framework of the tree, usually bear no fruit buds, and are found in great quantity on young trees. The pruner should select from among them those which he needs to form his tree. Where this is already well shaped and filled, the shoots may be left untouched, as they will then merely lengthen, but where the tree is thin and "unfurnished," the tips of some few selected ones should be cut back, that they may break sideways and fill the vacant places. The useful growths in a plum tree are the "stubs" which do not make long wood. A tree which produces these in number is a good bearer, and they should be touched as little as possible. With standards, pyramids and bushes, once the tree is properly formed all buds not wanted for training in to replace old wood should be rubbed off in spring. In July all useless side-shoots should be stopped-back, and in winter the "stubs" should be pruned back to two or three buds. All old, broken and diseased wood must be cut out. Wall-trained fruit has a tendency to make vigorous growth towards its top and for

## FRUIT GROWING

the base of the trees to become bare. During July and August stop the side-shoots of these wall-trained trees to six to eight leaves to encourage the formation of fruit spurs, and again cut them back to two or three buds in winter, at which time shorten the main shoots a little each year until the trees have covered the wall, training the lower branches well downwards.

Plums require thinning, and a start is usually made in June or early July. (See Thinning, page 210.)

## RASPBERRIES

The bushes should be gone over in June and all suckers should be removed, except about six of the strongest. Immediately after cropping is over, all old canes that have borne fruit and any weak shoots should be cut down to the ground. Cut off the tops of the young mature canes in March. The autumn varieties should have their canes cut down in February.

## STRAWBERRIES (In the Open)

Strawberries do best in a deeply-dug, well-drained loam which had been well dressed with manure some two or three months previously to planting. (See Manuring Fruit, page 211.)

In many gardens, the strawberry crop is all too soon over. By using early and late varieties and by planting in borders with different aspects, strawberries may be had in fruit for quite a long time. Those in the south border will be ready early in June; those in a bed facing north will form the late crop. An open, sunny position is essential.

**Propagation.**—Generally speaking, strawberries crop best in their first season in the beds and deteriorate very much, in size, if not in quantity, after their second or third year. About a third of the bed should, therefore, be laid down, on a fresh site, with fresh runners each year, so that no plants shall become more than three years old. The usual and the best method of propagation is by layering early in July. Early and vigorous runners with good compact centres from one-







LILIUM TIGRINUM (TIGER LILY).

[C. W. Teager.

## STRAWBERRIES

year-old, heavy-fruited plants should be selected. It is best to peg the layers down into 3 to 3½-inch pots, rather than into the ground.

These potted layers should be transplanted into their permanent positions in August or September.

**Planting.**—Just previously to planting, the soil should be well watered and made firm. Planting should take place during the latter half of September; late planting will give the strawberry little chance of becoming established before the winter sets in, and results in small and scanty fruit. The plants must be set in so that the crown is left just above the surface of the soil. The plants should be watered in their pots before planting, and water should be liberally given for a few days if the weather is dry. Every October, a liberal top-dressing of manure should be given between the rows, being forked-in early in March. In May, before the flowers open, the ground between the plants should be well hoed, dusted with soot, or nitrate of soda at the rate of 1 oz. to the square yard, and should then be covered with fairly short straw to keep the fruit from being splashed with mud. If late frosts are severe, this straw may be pulled up over the bloom to protect it. About 18 inches should be allowed from plant to plant, and 2 feet to 2 feet 6 inches between the rows. After the fruit has been gathered, the straw should be removed, also the oldest of the leaves, and all the runners except those required for layering. The surface of the soil must also be loosened gently.

The plants should not be allowed to bear their first year or they will be lastingly weakened.

**Perpetual Fruiting Strawberries.**—The St. Fiacre is large-fruited and of fine flavour, and is one of the best varieties of this kind of strawberry, which, if well-manured late in June, bears in summer in the ordinary way and again in September.

**Alpine Strawberries.**—These also produce fruit in the autumn. They are usually planted some 10 inches apart in March as edgings to borders. Cultivation is similar to that of ordinary strawberries.

**Varieties.**—See list, page 217.

## FRUIT GROWING

### THINNING-OUT THE FRUIT

Where size of fruit is a consideration, the thinning of the fruit is important. Too heavy a crop ripened one year almost certainly means but little fruit the following and over-cropping weakens the trees. Especially necessary is it for young trees to be heavily thinned. Sturdy bushes or cordons may bear just a few fruit in their third year—say one fruit to each spur. With older trees only just as much fruit as the tree can mature satisfactorily should be left on the branches; the larger the probable eventual size of the fruit, the smaller the number that should be allowed to remain, and the more vigorous the tree the more it may be permitted to bear.

In thinning, all mis-shapen and badly placed fruit should first be removed, and the operation of thinning should be performed, not all at once, but in two or three stages.

### MANURING

Farmyard manure contains nitrogen, phosphates and potash—the three essential plant foods—but to secure a large crop of fruit the trees should be given a little additional stimulant in the way of artificial manure.

Farmyard manure is invariably spread during the winter; artificial manures after pruning, when the fruit is set, or in the spring, according to the special characteristics of the fertilizer selected.

## FRUIT GROWING

### HOW AND WHEN TO APPLY MANURES

(Area  $\frac{1}{2}$  acre)

NOTE.—3 qrs. per  $\frac{1}{2}$  Acre is equal to 2 lb. to the Square Rod, or 1 oz. per Square Yard. The artificial manures are given in addition to the farmyard manure, which is applied in winter.

Fruit	Farmyard Manure	Artificial Manure <sup>2</sup>	When to Apply the Artificial Manures
Apple . . .	5 tons	Superphosphate, $\frac{3}{4}$ cwt. and Nitrate of Soda, $\frac{1}{2}$ cwt.	After pruning When fruit is set
Apricot . .	Mulch annually in May	1 lb. Bone Meal	Winter.
Cherry . . .	5 tons	5 oz. Nitrate of Soda per tree	When fruit is set
		Sulphate of Potash, $\frac{1}{2}$ cwt. and Sulphate of Lime, $1\frac{1}{2}$ cwt. and Nitrate of Soda, $\frac{1}{2}$ cwt.	Winter
Cucumber .	4 cart-loads for a two - light frame in March	2 oz. Dried Fish Guano per sq. yd. or 1 oz. Sulphate of Ammonia per sq. yd.	When fruit is set Summer
Currant and Gooseberry	5 tons	Sulphate of Ammonia, $\frac{3}{4}$ cwt., and Basic Slag, 3 cwt.	*Spring
Damson ( <i>see Plum</i> ).			May
Fig . . . .	Mulch annually in May	Not required	Autumn (triennially)
Gooseberry ( <i>see Currant</i> ).			—
Grape . . .	A slight top-dressing	Apply Liquid Manure weekly from time the fruit sets until ripe	
Loganberry ( <i>see Raspberry</i> ).			
Medlar . . .	5 tons	Superphosphate, $\frac{3}{4}$ cwt. and Nitrate of Soda, $\frac{1}{2}$ cwt.	After pruning When fruit is set
Melon . . .	Six loads for a three-light frame when bed made up	Tepid liquid manure	At weekly intervals from the time the fruits begin to swell until ripe
Nectarine ( <i>see Peach</i> ).			
Nut . . . .	Not advised.		
Peach . . .	Mulch annually in May	1 lb. Bone Meal and 5 oz. Nitrate of Soda per tree	Winter When fruit is set
Pear . . . .	5 tons	4 oz. Basic Slag and 1 oz. Kainit per sq. yd. of area covered by roots and 2 oz. Superphosphate and 1 oz. Sulphate of Ammonia per sq. yd. of area covered by roots	Autumn
Plum and Damson	5 tons	Bone Meal, 3 qrs. and Nitrate of Soda, 2 qrs.	Early Spring
Quince ( <i>see Pear</i> ).			After pruning Spring
Raspberry .	5 tons (decayed)	$\frac{1}{2}$ cwt. Nitrate of Soda, $\frac{1}{2}$ cwt. Superphosphate, 1 cwt. Common Salt, $\frac{1}{2}$ cwt. Kainit	Half in March, half in June
Strawberry .	5 tons	Nitrate of Soda, $\frac{1}{2}$ cwt.	May
Tomato . .	In Pots : $\frac{1}{2}$ part of the compost (well decayed) In Beds : None	A pinch of Nitrate of Potash	At intervals through the growing season

## FRUIT GROWING

### GATHERING AND STORING FRUIT

The period for gathering fruit extends roughly from June until early November, the time at which it should be picked varying with the conditions prevailing locally; that is to say, it is affected by the weather, the soil, the situation, and the species and variety of fruit grown. There is also the consideration as to whether the fruit is to be gathered fully ripe for immediate use, or whether it must be picked earlier for storing purposes.

Fruit which ripens in summer and autumn should be gathered just a shade before it is ripe. A single day before they are perfectly ripe suffices for peaches and other delicate stone fruit; a week for apples and pears; but cherries are only gathered when completely ripe. Those apples and pears, which arrive at maturity in winter, are best gathered at the moment when the leaves begin to fall. It is better to lose a few apples through falling from the trees than to gather late-keeping varieties too soon. In the latter case, they will shrivel and lose their flavour when stored. Of cooking apples, only a few should be picked before they are actually ripe, and this should be done in the process of thinning-out the fruit. Fruit that has been damaged by insects and fungus will drop a considerable time before the other fruit, and this must not be taken as an indication that the sound fruit is ripe.

Quite a gentle touch will always cause ripe fruit to leave the tree, that is to say, the fruit-stalk parts easily from the twig on which it grows if the fruit is gently raised to the horizontal position. Fallen or bruised fruit should never be mixed with that which is to be stored.

Fruit should be gathered in dry weather only, and the late morning and the afternoon will usually be found the best time, as all the fruit should be quite dry.

### Storing

**Apples and Pears.** Unless properly stored, apples and pears will shrivel and deteriorate in flavour. These fruits need to be stored in an even temperature of about 45° Fahr., being looked over periodically once a fortnight, so that any decaying ones may be removed. They should first be sweated, i.e. laid in heaps and left to heat for ten days or a fortnight, and should then be stored away in baskets or hampers, boxes or cases, deep drawers, or on trays, or in a dry, dark

## GATHERING AND STORING

cellar in heaps, uncovered except during frost. Pears, especially, need constant inspection. It is not always easy to tell when they are beginning to ripen. With several varieties, however, the skin becomes a golden-yellow, or the tinge of red, if present, will become brighter.

**Grapes.** These should be cut when quite ripe so that the laterals removed with the bunches are about nine inches long. These should be inserted into wine bottles almost filled with water and containing a few lumps of charcoal. The bottles are then placed in racks or secured to the wall at an angle of 40 degrees, so that the grapes will hang naturally. The room in which they are stored must be kept cool and dark, but well aired. Bunches so kept will last almost into the new year.

### APPLES FOR CROSS-POLLINATION

Although most nurserymen claim that a few apples are self-fertile (see \*) and many partially so, there is little proof of this and it is always safer to plant one or two varieties that flower at the same time, or sufficiently near to enable cross-pollination to take place. For instance, most Second Early Flowering varieties would cross-pollinate Early Flowering sorts or Early Mid-season kinds. The numbers after each name indicate especially suitable cross-pollinators. Where there are no numbers, cross pollinate with others in the same flowering group.

#### Early Flowering

- |                  |                      |
|------------------|----------------------|
| 1 Irish Peach    | 3 Stirling Castle 15 |
| 2 Ribston Pippin |                      |

#### Second Early Flowering

- |                            |                                  |
|----------------------------|----------------------------------|
| 4 Beauty of Bath 9, 15, 28 | 8 Redcoat Grieve                 |
| 5 Bismark                  | 9 St. Everard 4, 21              |
| 6 James Grieve             | 10 Sturmer Pippin                |
| 7 Cutler Grieve,           | 11 Worcester Pearmain 15, 30, 31 |

#### Mid-season Flowering

- |   |  |
|---|--|
| 12 Annie Elizabeth 15, 24, 30, 31                     | 20 Grenadier                           |
| 13 Allington Pippin 18, 22                            | 21 King's Acre Pippin 9, 10            |
| 14 Court Pendu Plat 3, 9, 13, 29, 30                  | 22 King of the Pippins 18              |
| 15 Cox's Orange Pippin 9, 10, 11, 12, 23, 28, 33, 34  | 23 Lady Sudeley 15, 16                 |
| 16 Crimson Cox's Orange 9, 10, 11, 12, 23, 28, 33, 34 | 24 Lane's Prince Albert 15, 16, 17, 26 |
| 17 Early Victoria 24                                  | 25*Lord Derby                          |
| 18 Ellison's Orange 9, 23, 27                         | 26 Lord Grosvenor 24                   |
| 19 Gladstone  | 27 Rival 18                            |
|   | 28*Rev. W. Wilks 29                    |
|   | 29*Laxton's Superb 28                  |

#### Late Season Flowering

- |                                 |                          |
|---------------------------------|--------------------------|
| 30*Bramleys Seedling 11, 12, 15 | 33 Gascoyne's Scarlet 15 |
| 31*Crimson Bramley 11, 12, 15   | 34 Newton Wonder 32, 35  |
| 32 Blenheim 3, 9, 13, 18, 34    | 35 Orleans Reinette 34   |

## FRUIT VARIETIES

### APPLES FOR GARDEN CULTURE

#### Dessert

Adam's Pearmain (S)	James Grieve (N, S, E or W)	Ribston Pippin (S, E and W)
Charles Ross		
Cox's Orange Pippin (S, E and W)	Laxton's Superb (S, E or W)	Owen Thomas
Ellison's Orange (E and W)	Lord Lambourne	St. Edmund's Russet
	Orleans Reinette	St. Everard

{S, E, W, or N) denotes kinds which may, if desired, be grown on Walls facing South, East, West or North.

#### Cooking

Arthur Turner	Grenadier	Monarch
Early Victoria	Lane's Prince Albert	Royal Jubilee
Encore	Lord Derby	Stirling Castle

### PEARS: BEST GARDEN VARIETIES

*Beurré Clairgeau (C or D)	Early-flowering	Jargonelle (D)	Early-flowering
Bon Chrétien [William] (D)	Mid-season	*Josephine de Malines (D)	Mid-season
Conférence (D)	Early	†Laxton's Superb (D)	Mid-season
*Doyenné du Comice (D)	Late	†Louise Bonne of Jersey (D)	Mid-season
*Emile d'Heyst (D)	Mid-season	†Pitmaston Duchess (C or D)	Mid-season
*Glou Morceau (D)	Late	*Winter Nelis (D)	Mid-season

C—cooking. D—dessert.

\*Self-sterile vars. requiring cross-pollinators flowering at similar period.

† Partially self-fertile, others are self-fertile.

### PEARS FOR CROSS-POLLINATION

Although one or two varieties are said to be self-fertile (see \*) it is always safer to plant one or two varieties that flower at about the same period, so as to ensure cross-pollination. Early Mid-season Flowerers will usually also cross-pollinate Late Early Flowers, and Late Mid-season Flowerers will usually cross-pollinate Early Late Flowerers. The numbers after each name indicate especially suitable cross-pollinators. Where no numbers occur, cross-pollinate with others in the same group.

#### Early Flowering

1 Beurré Superfin 4	5 Marguerite Marillat 2
2*Conférence 3, 5, 14, 15, 16, 17, 19	6 Winter Nelis 3, 16
3*Durondeau	7 Winter Orange
4*Jargonelle	

#### Mid-season Flowering

8*Bon Chrétien	12*Fertility
9 Catillac 15	13 Josephine de Malines
10 Clapp's Favourite 8	14*Louise Bonne of Jersey
11 Emile d'Heyst 3, 4, 14, 16	15 Pitmaston Duchess 2, 9, 16, 19

#### Late Flowering

16 Doyenné du Comice 2, 6, 12, 18	18 Glou Morceau 16
17 Dr. Jules Guyot 2, 3,	19*Marie Louise

## FRUIT VARIETIES

### PLUMS : BEST GARDEN VARIETIES

Belle de Louvain (C) . . . . .	Late-flowering	*Jefferson's Gage (D) . . . . .	Early-flowering
†Cambridge Gage (D) . . . . .	Early	*Kirke's Blue (D) . . . . .	Mid-season
*Coe's Golden Drop (D) . . . . .	Early	Monarch (C) . . . . .	Early
Czar (C) . . . . .	Late	Oullin's Golden Gage (D) . . . . .	Late
*Early Transparent Gage (D) . . . . .	Mid-season	*President (C) . . . . .	Early
Green Gage (D) . . . . .	Early	Victoria (C or D) . . . . .	Mid-season

C—cooking.                      D—dessert.

\*Self-sterile vars. requiring cross-pollinators flowering at similar periods.

† Partially self-fertile. Others all self-fertile.

### PLUMS FOR CROSS-POLLINATION

Although quite a number of varieties of Plum are self-fertile, many good sorts are only partially self-fertile, and a few are definitely self-sterile. Those marked with an \* are self-fertile, and when any of the others are planted, cross-pollination is necessary. The numbers following the names indicate especially suitable cross-pollinators. Any in the same group are usually suitable.

#### Early Flowering

1 Coe's Golden Drop	2, 3, 4, 5, 7,	5*Greengage (Reine Claude)
8, 10 13		6 Jefferson 3, 4, 5, 7, 9, 13
2*Denniston's Superb Gage		7*Monarch
3 Early Rivers	1, 4, 6, 8, 13, 18	8 President 1, 3, 6, 22
4*Early Transparent Gage		

#### Mid-season Flowering

9*Cox's Emperor	14*King of the Damsons
10 Early Orleans 13	15 Kirke's Blue 5, 8
11*Evesham Wonder	16*Pershaw Yellow
12*Farleigh Damson	17*Pershaw Purple
13*Giant Prune	18*Victoria

#### Late Flowering

19*Belle de Louvain	21*Oullin's Golden Gage
20*Czar	22 Pond's Seedling 3, 4, 8, 9, 18

### CHERRIES FOR GARDENS

Variety	Season	Colour
Belle d'Orleans . . . . .	Late (August) . . . . .	Red
Black Tartarian . . . . .	Early (June-July) . . . . .	Black
Early Rivers . . . . .	Early (June-July) . . . . .	Black
Elton . . . . .	Mid-season (July) . . . . .	White
Frogmore Early Bigarreau	Early (July) . . . . .	White
Governor Wood . . . . .	Early (June-July) . . . . .	White
*Kentish Red . . . . .	Mid-season (July) . . . . .	Red
*Morello . . . . .	Late (Aug.-Sept.) . . . . .	Red
*Triaux . . . . .	Late (July-Aug.) . . . . .	Red
Waterloo . . . . .	Early (June-July) . . . . .	Black

\* Denotes Cooking Cherries, and which may, if desired, be grown on N. S. or E. Walls.



## FRUIT VARIETIES

### CURRANTS FOR GARDENS

#### Black

Boskoop Giant (Early)	Seabrook's Black (Mid-season)	Westwick Triumph (Late)
Davison's Eight (Mid-season)	Goliath [Victoria Edina] (Mid-season)	Daniel's September (Late)

#### Red

Fay's Prolific (Early)	Laxton's Perfection (Early Mid-season)	Versailles (Early)
Laxton's No. 1 (Mid-season)	Wilson's Long Bunch (Late)	Prince Albert (Late)

#### White

White Versailles (Early)	White Champion (Late)	White Dutch (Mid-season)
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### GOOSEBERRIES FOR GARDEN CULTURE

#### Green

Howard's Lancer (Mid-season)	*Keepsake (Early)	Whinham's Industry (Mid-season)
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#### Yellow

\*Leveller (Mid-season)

#### White

Whitesmith (Mid-season)

Varieties with large fruits

*Varieties with Small, Highly-flavoured fruits*

Champagne (Red)	Ironmonger (Red)	Warrington (Red)
Golden Drop (Yellow)	Langley's Gage (Yellow)	

### BEST VARIETIES FOR PICKING GREEN

Careless	Keepsake	Lancashire Lad
White Lion.		

### VARIETIES WITH VERY LARGE FRUITS

#### Green

Green Ocean	Keepsake	Stockwell
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#### Red

Lancashire Lad	London	Lord Derby
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#### Yellow

Broom Girl	Cousen's Seedling	Leader
Leveller	Trumpeter	

#### White

Careless	White Lion.
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All the above are suitable sorts to grow for exhibition.

## FRUIT VARIETIES

### PEACHES, GOOD VARIETIES

Early (July-August)		
†Alexander	• Earliest of All	*†Peregrine
*Amsden June	*†Hale's Early	*†Waterloo
Mid-Season (August-Early September)		
*Crimson Galande	†Royal George	Violette Hative
Late (September-October)		
*Barrington	Golden Eagle	†Late Admirable.
*Bellegarde White	†Gladstone	*Sea Eagle.

\* Denotes those kinds which may be grown on a south wall in the open.  
† Denotes best market varieties.

### RASPBERRIES FOR GARDENS

Summer Fruiting		
Baumforth's Seedling A.	Pyne's Royal	Red Cross
Laxton's Bountiful	Reader's Perfection	
Autumn Fruiting		
Hailsham Berry	November Abundance	October Red
Yellow Fruiting		
Golden Hornet	Surprise d'Automne	

### STRAWBERRIES FOR GARDENS

Doctor Hogg	Late Fruiting	Tardive de Leopold	Late Fruiting
Royal Sovereign	Early „	Waterloo	Late „
Sir Joseph Paxton	Mid-season,,		
Alpine Strawberries			
Alpine Improved	Summer-Autumn	Bush White	Summer-Autumn
Perpetual Fruiting			
St.Antoine de Padoue	Autumn	St. Fiacre	Summer and Autumn

### FRUIT FOR GROWING ON WALLS

North Walls		
Cherries, Morello and Sweet(For Keeping)	Currants	Pears (Early)
	Gooseberries	Plums
East Walls		
Cherries (Early)	Gooseberries	Plums
Currants	Pears (Early)	
South Walls		
Apricots	Grapes	Pears (Late)
Figs	Peaches and Nectarines	Plums
West Walls		
Apricots	Pears (Main Crop and Late)	Plums
Peaches and Nectarines		

For varieties, see separate lists, under Pears, Plums, etc.

## MEASURES USED FOR FRUIT AND VEGETABLES

Fruit and vegetables of different kinds are unlike in weight, texture and bulk. A bushel of one variety of apples will be found to weigh more than an equal bulk of another kind. Similarly, ten cabbages of one variety may be a good deal lighter than ten of another kind. It is, therefore, very difficult to quote definite figures in these tables of weights and measures. Those given here must be taken as averages only.

### FRUIT

Name	Measure	Average Weight in lbs.	Name	Measure	Average Weight in lbs.
Apples . . .	Sieve or Bushel	40-45	Grapes . . .	Punnet	2 or 4
Cherries . . .	Sieve or Bushel	45-48	Pears . . .	Sieve or Bushel	60
Currants . . .	Sieve or Bushel	45-48	Plums . . .	Sieve or Bushel	56
Filberts . . .	Hundredweight	100	Raspberries . .	Punnet, Gallon or Peck	—
Gooseberries . .	Sieve or Bushel	56	Strawberries .	Chip	2½-4

### VEGETABLES, SALADS AND HERBS

Name	Measure	Average Weight in lbs.	Name	Measure	Average Weight in lbs.
Artichokes . .	Half Bushel	28	Beans :— Broad (pods) .	Bushel	36
Asparagus . .	Bundle	100-125 Heads	French (pods) .	Bushel	40
			Runner (pods) .	Bushel	28

# **MEASURES USED FOR FRUIT AND VEGETABLES (continued)** **VEGETABLES, SALADS AND HERBS (continued)**

Name	Measure	Average Weight in lbs.	Name	Measure	Average Weight in lbs.
Beetroot . . .	Bushel	40	Onions . . .	Bushel	60
Beetroot . . .	Hundredweight	112	Parnips . . .	Bushel	56
Broccoli . . .	Bags			Also Hundred-	112
Brussels Sprouts .	Bundle	6-20 Heads		weight Bag	
	Half Bushel	16	Peas (pods) . .	Bushel	56
Cabbages . . .	Tally	60 Cabbages	Potatoes . . .	Sack (cwt.)	112
Carrots . . .	Bunch	8-12 Roots	Potatoes . . .	Bushel	80
Celery . . .	Bundle	6-20 Heads	Potatoes (new)	Punnets	2
Endive . . .	Score	22 Plants	Radishes . . .	Bunch or Punnet	—
Garlic . . .	Bushel	46	Rhubarb . . .	Bundle	20-30 Stems
Herbs . . .	Bunch	—	Seakale . . .	Bunch	12-18 Heads
Leeks . . .	Bunch (as many as can be tied up)	—	Sorrel . . .	Bushel	16
	Score		Spinach . . .	Bushel	20
Lettuce . . .		22 Plants	Swedes . . .	Bushel	56
Mushrooms . . .	Punnet, Peck or Strike	—	Turnips . . .	Bunch	12-25 Roots and Hundredweight Bags.

NOTE.—A sieve contains 7 Imperial Gallons.

## TOMATOES

Tomatoes of moderate quality can, in favourable seasons, be grown in sheltered situations in the open air in the southern parts of England, preferably against a south wall or fence. In average seasons in almost all districts, some kind of glass structure is desirable if ripe fruit is to be obtained.

**Soil.**—For the successful growing of tomatoes a fibrous loam, mixed with a little sharp sand, together with leaf-mould and some well-decayed manure is required. Too much soil must not be introduced at first. The plant should be started in a small mound of soil, well-up near the light, and more earth should be added as the roots grow and demand fresh compost.

Over-manuring definitely tends to unfruitfulness, and no manure must be used which has not fully fermented. It is desirable to add a pinch or two of kainit or nitrate of potash at intervals through the growing season.

**Sowing.**—Seed should be sown at weekly intervals through February and March,  $\frac{1}{4}$  inch deep and 1 inch apart in pans covered with glass and paper and placed close to the glass in a warm greenhouse or moderately warm frame. (Night temperature, 60°F.; day temperature, 70°F.) The pans should be shaded from the strong sun till the seeds germinate. Seed sown in February should produce fruit in July. As soon as two leaves appear on the seedlings, they should be pricked-off singly into thumb pots, a good half of the stem being buried in the soil. In a small greenhouse, it is well that these young seedlings should be kept near the glass, to keep them short-jointed. As they grow, they should be moved on into larger pots, and in about 10 or 12 weeks, they should be ready for planting out into borders, 18 inches apart in the row, or into the final pots, some 10 inches in diameter, in which they are to be fruited. The first truss of bloom must be formed before the plants are finally planted out. Potting should be very firm.

**Cultivation under Glass.**—Under glass, 3 feet should be allowed from plant to plant. Wires should be stretched 9 or 10 inches from the glass and the plants may be trained along these under the glass. All side shoots must be nipped off, only the flower trusses being allowed to break from the main stem. The plants should have their heads pinched out as soon as they reach the top of the wires. To "set" the fruit, pass a rabbit's tail over the flowers each day.

## TOMATOES

Although warmth is necessary, over-heating is to be avoided. A night temperature of 55° to 60°F. and a day temperature of 60° to 70° or 75°F. should mark the extremes. Ample ventilation must be given.

Generous watering is essential at every period of growth, though a permanently saturated condition of the soil is, of course, undesirable. Seeds may be sown in June and July to furnish tomatoes through the winter.

**Cultivation in the Open.**—In the case of tomatoes to be grown in the open-air, seeds should be sown in March under conditions similar to those already suggested.

Suitable varieties, such as Evesham Wonder or Ideal, should be selected for the purpose.

The young tomato plants, when some 15 inches high, should be cautiously hardened, and should be planted out about the end of May. A medium loam is the most suitable soil, and good drainage is essential. The best situation for tomato plants is against a south wall fully exposed to the sun.

For the first week or so, the plants should be protected at night by means of seakale pots or drain-pipes. They should be well watered with liquid manure to keep up a rapid growth. As soon as the blossom-buds appear, watering should cease. The side-shoots must be stopped, the tops being nipped off, and all those sprays that show little signs of fruit must be thrown out, the plant not being allowed to grow much over 3 feet high. Water must be given only to prevent a check in case of drought. In dry weather, mulching with manure is beneficial.

If the fruit will not ripen, the branches on which full-grown fruit is found should be cut off and hung in a warm dry greenhouse.

## THE GREENHOUSE

### TO FIND THE CUBIC SPACE

To find the cubic space in a greenhouse, take the height to the eaves, and the height to the ridge, add these together and divide by two to get an average, then multiply this figure by the length, and again by the breadth.

### CONVERSION OF THERMOMETER TEMPERATURES

To convert a Centigrade temperature to Fahrenheit, multiply the former by 9, divide by 5 and then add 32.

E.g. Boiling Point is 100°C.  $100^{\circ} \times 9 = 900^{\circ}$ .  $900^{\circ} \div 5 = 180^{\circ}$ .  $180^{\circ} + 32 = 212^{\circ}$ . Boiling Point is 212°F.

Vice versa, to convert a Fahrenheit temperature to Centigrade, take away 32, then multiply by 5, and divide by 9.

E.g. Boiling Point is 212°F.  $212^{\circ} - 32 = 180^{\circ}$ .  $180^{\circ} \times 5 = 900^{\circ}$ .  $900^{\circ} \div 9 = 100^{\circ}$ .

Freezing Point = 32°F. = 0°C.

$-17\frac{1}{2}^{\circ}\text{C.} = 0^{\circ}\text{F.}$   $-6\frac{1}{2}^{\circ}\text{C.} = 20^{\circ}\text{F.}$   $-1^{\circ}\text{C.} = 30^{\circ}\text{F.}$

## PLANTS FOR THE COLD OR UNHEATED GREENHOUSE

### FLOWERING PLANTS

#### Spring

<i>Aquilegia coerulea</i>	<i>Polygonatum multi-</i>	<i>Sedum</i>
<i>Astilbe japonica</i>	<i>florum</i>	<i>Sempervivum</i>
Carnations (Perpetual)	<i>Primula vulgaris</i> (Prim-	<i>Tiarella cordifolia</i>
<i>Cheiranthus</i>	rose)	<i>Trollius asiaticus</i> and
<i>Convallaria majalis</i>	<i>Primula Auricula</i>	<i>europæus</i>
(Lily-of-the-Valley)	<i>Primula variabilis</i>	<i>Viola odorata</i> (Violet)
Pansies	( <i>Polyanthus</i> )	Wallflower (see
<i>Polygala</i>	<i>Saxifraga</i>	<i>Cheiranthus</i> )

#### Summer

<i>Agapanthus</i> (African	<i>Collinsia</i>	<i>Pelargonium</i>
Lilies)	<i>Cotyledon chrysantha</i>	<i>Petunia</i>
<i>Alonsoa</i>	<i>Dianthus Heddewigii</i>	<i>Salpiglossis</i>
<i>Begonia</i> (Tuberous)	<i>Dicentra spectabilis</i>	<i>Scabiosa caucasica</i> and
<i>Begonia semperflorens</i>	<i>Fuchsias</i>	<i>S. atropurpurea</i>
vars.	<i>Helipterum</i>	( <i>Scabicus</i> )
<i>Browallia</i>	( <i>Rhodanthe</i> )	<i>Schizanthus pinnatus</i>
<i>Calceolaria</i> (Herbaceous	<i>Hibiscus</i>	<i>Senecio</i>
and Shrubby)	<i>Humea elegans</i>	<i>Sisyrinchium</i>
<i>Campanula pyrami-</i>	<i>Ismene</i>	<i>Bermudianum</i>
<i>dalis</i>	<i>Lathyrus</i> (Sweet Pea)	*Sweet Pea
Carnations (Perpetual)	<i>Lobelia cardinalis</i>	<i>Thalictrum dipterocar-</i>
<i>Celosias</i>	<i>Matthiola</i> (Intermed-	<i>pum</i>
<i>Callistephus chinensis</i>	iate Stock)	<i>Thunbergia alata</i>
(China Aster)	<i>Nicotiana</i> (Tobacco	<i>Torenia</i>
<i>Chrysanthemum</i>	Plant)	<i>Verbena</i>
<i>arcticum</i>	<i>Oenothera</i> (Evening	<i>Viscaria</i>
<i>Chrysanthemum</i>	Primrose)	<i>Waitzia</i>
<i>frutescens</i>	<i>Oxalis</i>	<i>Zinnia</i>
<i>Clarkia elegans</i>		
(varieties)		

\* Denotes Climber. Many of the annuals can be had in bloom at other seasons by sowing at suitable times.

## THE GREENHOUSE

### PLANTS FOR COLD OR UNHEATED GREENHOUSE (ctd.)

#### FLOWERING PLANTS (continued)

##### Autumn

Carnation (Perpetual)	*Lapageria rosea	Sedum
Chrysanthemum	Philesia buxifolia	Sempervivum
Kniphofia (Red Hot Poker)	Schizotylis coccinea	

\* Denotes Climber. Many of the annuals can be had in bloom at other seasons by sowing at suitable times.

#### BULBS, CORMS AND TUBEROUS-ROOTED PLANTS

##### Spring

*Anemone blanda and A. fulgens	*Fritillaria Meleagris	Ornithogalum arabicum
*Brodiaea	Galanthus (Snowdrop)	
*Bulbocodium vernum	*Hyacinthus azurea	*Scilla bifolia
*Cyclamen coum	*Iris reticulata	Tecophilaea cyanocrocus
Daffodils (Narcissus)	*Muscari botryoides	Trillium grandiflorum
*Eranthis cilicica	*Narcissus Bulbocodium	Tulip
	*Narcissus Horsfieldi, etc.	

##### Summer

Allium	Ferraria (Black Iris)	Tigridia Pavonia
Alstroemeria	Ixia	Vallota purpurea
Babiana	Lilium auratum and L. candidans	Wachendorfia paniculata
Bravoa geminiflora	Pancratium illyricum	Watsonia Meriana var. Ardernei
Calochortus	Phædranassa chloracra	
Crinum Moorei and C. Powellii	Sparaxis	

##### Autumn

Amaryllis Belladonna	Kniphofia Macowanii	*Sternbergia
Eucomis punctata	Lapeyrousia cruenta	Tritonia (Montbretia)
Gladiola	Lilium speciosum	Zephyranthes atamasco and Z. candida
Hyacinthus candicans (Galthonia or Cape Hyacinth)	Nerine	

##### Winter

Arum Lily (Richardia)	Freesia	Richardia (Zantedeschias) Arum Lily
*Cyclamen neapolitanum	Iris alata	
	*Iris unguicularis	

\* Denotes bulbs and corms suitable for culture in the Alpine House. All small bulbs are best grown in shallow pans—not pots.

#### FLOWERING SHRUBS

##### Spring

Berberis linearifolia	Cytisus kewensis	Forsythia intermedia var. spectabilis
Camellia japonica var. reticulata	Daphne Cneorum	Prunus japonica fl. pl.
Coronilla glauca	Deutzia gracilis	Spiraea argutus
Corylopsis pauciflora	Epacris	Viburnum Carlesii
Cydonia japonica	Erica mediterranea	
	Eriostemon pulchellus	



## THE GREENHOUSE

### PLANTS FOR COLD OR UNHEATED GREENHOUSE (ctd.) FLOWERING SHRUBS (continued)

#### Summer

<i>Andromeda polifolia</i>	<i>Desmodium illiifolium</i>	<i>Pernettya mucronata</i>
<i>Azalea mollis</i>	<i>Diervilla</i>	<i>Pieris floribunda</i>
<i>Buddleia asiatica</i>	* <i>Eccremocarpus scaber</i>	<i>Romneya Coulteri</i>
<i>Ceanothus rigidus</i>	<i>Erica arborea</i> and <i>E.</i>	Roses
* <i>Clematis Jackmanii</i>	<i>lusitanica</i>	<i>Solanum jasminoides</i>
(Climber)	<i>Eucryphia glandulosa</i>	<i>Staphylea Coulombieri</i>
<i>Clethra alnifolia</i>	<i>Hydrangea opuloides</i>	* <i>Swainsonia galegifolia</i>
<i>Coronilla valentina</i>	( <i>hortensis</i> ) vars.	<i>Syringa vulgaris</i> (Lilac)
<i>Correa speciosa</i>	<i>Lippia chamædrifolia</i>	<i>Veronica Hulseana</i>
<i>Cytisus Ardoinii</i> and	<i>Mitraria coccinea</i>	<i>Wistaria floribunda</i>
<i>C. Beanii</i>	<i>Mutisia decurrens</i>	<i>Zenobia pulverulenta</i>
<i>Desfontainea spinosa</i>	<i>Nerium Oleander</i>	<i>Zizyphus sativa</i>

#### Autumn

<i>Bignonia capreolata</i>	<i>Clerodendron fragrans</i>	<i>Punica granatum nana</i>
<i>Buddleia alternifolia</i>	<i>Fatsia japonica</i>	<i>Rosa</i> (Rose)
* <i>Campsis</i> ( <i>Bignonia</i> )	* <i>Passiflora carulea</i>	<i>Salvia Grahamii</i>
<i>grandiflora</i>	<i>Pernettya mucronata</i>	<i>Veronica speciosa</i>

#### Winter

<i>Erica carnea</i> and <i>E.</i>	* <i>Jasminum nudiflorum</i>	<i>Viburnum fragrans</i> and
<i>mediterranea</i>	and <i>J. primulinum</i>	<i>V. Tinus</i> ( <i>Laurustinus</i> )
<i>Fatsia japonica</i>	<i>Solanum capsicastrum</i>	
	* Denotes Climbers.	

### GREENHOUSE TEMPERATURES

The temperature of the greenhouse must of necessity vary with the plants grown. Greenhouses are, however, roughly divided into cold or unheated, cool, warm or intermediate, and hot houses; and as a rough guide the following may be taken as mean temperatures.

COOL HOUSE	{ Summer	Day	. 60° to 65° F.
		Night	. 55° to 60° F.
	{ Winter	Day	. 55° to 60° F.
		Night	. 45° to 50° F.
WARM (INTERMEDIATE) HOUSE	{ Summer	Day	. 65° to 75° F.
		Night	. 60° to 70° F.
	{ Winter	Day	. 60° to 70° F.
		Night	. 55° to 65° F.
HOT HOUSE	{ Summer	Day	. 70° to 85° F.
		Night	. 65° to 75° F.
	{ Winter	Day	. 65° to 75° F.
		Night	. 60° to 70° F.

Temperatures should never be allowed to fall below these lower figures in any of the artificially heated houses, and if in summer the temperature rises during the sunny part of the day, the house must at once be ventilated when the indicated maximum has been reached.



[Malby

CELOSIA (Prince of Wales' Feather or Cockscomb)



## THE GREENHOUSE

### A SELECTION OF PLANTS FOR THE COOL GREENHOUSE

Summer Temperature 55°-65°F. Winter Temperature 45°-60°F.

#### Flowering in Spring

Agathæa cœlestris	Clivia miniata (and	Lachenalia (various)
Azalea indica and A.	Hybrids)	Lilium (various)
mollis	Convallaria majalis	Moræa iridioides •
Boronia (various)	(Lily-of-the-Valley)	Myosotis (Forget-me-
B r a c h y s e m a	Cytisus canariensis (syn	not)
lanceolatum	Genista fragrans)	Pelargonium, Regal
Browallia (various)	Deutzia gracilis	Pelargonium, Zonal
Camellia japonica	Dicentra spectabilis	Primula (various)
(varieties)	Erica (S. African	Tropæolum azureum
Carnation (Perpetual)	Heath)	Z a n t e d e s c h i a
Cineraria (various)	Eupatorium (various)	(Richardia æthiopica)
Clianthus puniceus	Freesia (various)	Arum Lily
	Hibbertia dentata	

#### Flowering in Summer

Abelia	Gazania (various)	Lotus Bertholetii
Agapanthus	Gomphrena globosa	Mesembryanthemum
Balsam	Habranthus pratensis	(various)
Begonia (various)	Hebenstretia comosa	Mimulus (Musk)
Calceolaria (various)	Heliotropium peruvia-	Nerium Oleander
Callistemon	num	Olearia (various)
Campanula isophylla	Hydrangea opuloides	Oxalis
Campanula pyramidalis	(varieties)	Pelargonium, Regal and
Carnation (Malmaison)	Kalmia latifolia	P. Zonal
Celsia Arcturus	Kennedy Beckxiana	Petunia (various)
Cobæa scandens	Lantana Camara	Schizanthus (various)
Corydalis thalictrifolia	Leptospermum scopar-	Stephanotis floribunda
Crinum Moorei and C.	ium var. Boscawenii	Streptosolen Jamesonii
Powellii	Lilium (various)	Trachelium cœruleum
Erlangea tomentosa	Lisianthus Russellianus	Verbena (various)
Francoa ramosa	Lobelia cardinalis	Zinnia (various)
Fuchsia (various)		

#### Flowering in Autumn

Abutilon (various)	Gazania (various)	Salvia (various)
Amaryllis Belladonna	Gerbera (hybrids)	Schizostylis coccinea
Bignonia	Lapageria rosea	Streptocarpus (hybrids)
Browallia (various)	Mignonette (Reseda)	Vallota purpurea
C h r y s a n t h e m u m	Nerine (various)	(Scarborough Lily)
(various)	Plumbago capensis	Zinnia elegans (vars.)
Fatsia japonica	Reseda (Mignonette)	

#### Flowering in Winter

Begonia, Fibrous-	Cineraria (various)	Eupatorium vernale
rooted	Cyclamen persicum	Helleborus niger
Bouvardia (various)	Daphne indica (syn.	(Christmas Rose)
Carnation (Perpetual)	odora)	Sparmannia africana
Cheiranthus kewensis	Epacris	Tropæolum Lobbianum
C h r y s a n t h e m u m	Erica (S. African	Wallflower (Cheir-
(Japanese)	Heath) various	anthus)

# THE GREENHOUSE

## SOME BULBS AND TUBERS FOR GROWING IN POTS

### COLD HOUSE (Frost-proof)

Name	Pot Up	Bring into House
<i>Alstroemeria</i>	Spring	When in flower
<i>Anemones</i> (tuberous)	Sept. to Nov.	When well rooted
* <i>Brevoortia</i>	Autumn	Grow on in cold house
* <i>Brodiaea</i>	Autumn	Grow on in cold house
* <i>Calochortus</i> (various)	Autumn	Place in cold frame
<i>Chionodoxa</i>	July to September	Place in cold frame
* <i>Colchicum</i>	July and August	Autumn
* <i>Convallaria majalis</i>	At Intervals	Autumn and Winter
<i>Crocus</i> (various)	July to October	When in flower
* <i>Dog's Tooth Violet</i> (see <i>Erythronium</i> )		
* <i>Eranthis</i>	Sept. to Nov.	End of December
* <i>Erythronium Dens Canis</i>	Aug. and Sept.	March and April
* <i>Fritillaria</i>	Sept. and Oct.	March and April
* <i>Galanthus</i> (Snowdrop)	Sept. and Oct.	January to March
<i>Galtonia candicans</i>	Spring	When in bud
<i>Iris</i> (various)	Sept. and Oct.	From February as buds appear
<i>Ixiolirion montanum</i>	February and March	May and June, when in bud
<i>Leucojum</i>	August and September	Bring in when in bud
<i>Lilium</i> (various)	Autumn or Spring	Grow in cold house as required
<i>Lily-of-the-Valley</i> (see <i>Convallaria</i> )		
<i>Montbretia</i> (see <i>Tritonia</i> )		
* <i>Muscari botrioides</i>	September and October. (Place in cold frame)	Bring in when in flower
* <i>Narcissus</i> (various)	August to October	As required from December onwards
* <i>Ranunculus asiaticus</i>	September and October and again in February	Grow on in cold frame till in bud
<i>Snowdrop</i> (see <i>Galanthus</i> )		
* <i>Sternbergia lutea major</i>	May and June (in pan outside)	Place in cold house in flower
<i>Tigridia conchiflora</i> and <i>T. Pavonia</i>	August and September	In pans in cold frame till in bud
* <i>Trillium grandiflorum</i>	August and September	In pans in cold frame till in bud
* <i>Triteleia</i>	September and October	In cold frame till in bud
<i>Tritonia</i> ( <i>Montbretia</i> )	February and March	Autumn
<i>Winter Aconite</i> (see <i>Eranthis</i> )		
<i>Zephyranthes candida</i>	February and March	September

### COOL HOUSE (Temperature : Summer 55°-65°F., Winter 45°-60°F.)

Name	Pot Up	Bring into House
<i>Agapanthus</i>	Early Spring	At once in warmth
<i>Allium neapolitanum</i>	September to November	As required
<i>Begonias</i> (tuberous)	In heat in February	At once, harden off later

\* Suitable for growing in pans for the Alpine House.

## THE GREENHOUSE

### SOME BULBS AND TUBERS FOR GROWING IN POTS (continued)

#### COOL HOUSE (continued)

(Temperature : Summer 55°-65°F., Winter 45°-60°F.)

Name	Pot Up	Bring into House
Bloomeria	Autumn	Grow on in cool house
Convallaria majalis	At intervals	Autumn and Winter
Crinum Moorei and C. Powellii	Spring and Early Summer	Grow on in cool house
Daffodil Garlic (see Allium)		
Freesia (various)	August and September	January and February
*Fritillaria meleagris	September and October	March and April
*Gladioli (various)	April	When in bud
Guernsey Lily (see Nerine)		
Homeria	October	Place in cool house
Hyacinthus azureus	September and October	December to February
Iris (various)	September and October	From February onwards as buds appear
Ixia Lily (see Ixiolirion)		
Ixia speciosa	October (Place in frame)	In Spring
Ixiolirion montanum	February and March	May and June, when in bud
Lachenalia	August and September	Grow on in cool house
Leopard Lily (see Lachenalia)		
Lilium (various)	Autumn or Spring	Grow on in cool house as required
Lily-of-the-Valley (see Convallaria)		
*Narcissus (various)	August to October	As required, from December onwards
Nerine (Guernsey Lily)	Autumn after flowering	When in flower
Ornithogalum arabicum	September and October	Place in cool house
Pancratium illyricum	February and March	Grow on in cool house
Phædranassa chloracra	February and March	Grow on in cool house
Richardia [Zantedeschia] (Arum Lily)	August and September	Grow on in cool house
Scarborough Lily (see Vallota)		
Sparaxis grandiflora and S. tricolor	September and October	Keep in cool house
Star of Bethlehem (see Ornithogalum)		
Vallota (Scarborough Lily)	June and July	Grow on in cool house
Wachendorfia	January and February	Grow on in cool house
Watsonia Meriana var. Ardernei	January and February	Grow on in cool house

\* Suitable for growing in pans for the Alpine House.

# THE GREENHOUSE

## SOME WINTER-FLOWERING GREENHOUSE PLANTS

### COLD HOUSE (Frost-proof)

Name	Flowering Period
Anemone blanda . . . . .	February to March
Chionodoxa . . . . .	March
Christmas Rose (see Helleborus)	
Chrysanthemum . . . . .	October to January
Crocus (some vars.) . . . . .	February to April
Daphne . . . . .	January to March
Galanthus (Snowdrop) . . . . .	January to February
Glory-of-the-Snow (see Chionodoxa)	
Helleborus niger . . . . .	December to January
Iris (early) . . . . .	April to March
Schizostylis coccinea . . . . .	October to December
Snowdrop (see Galanthus)	
Violets (Heapolitan) . . . . .	January to April

### COOL HOUSE (Temperature : Summer 55°-65°F., Winter 45°-60°F.)

Name	Flowering Period
Alonsoa . . . . .	October to December
Carnations (Perpetual) . . . . .	November to April
Centropogon Lucyanus . . . . .	November to February
Cheiranthus (see Wallflowers)	
Chrysanthemum . . . . .	October to January
Cineraria . . . . .	January to April
Convallaria majalis . . . . .	December to March
Cyclamen persicum . . . . .	December to April
Erica gracilis . . . . .	December to March
Eupatorium . . . . .	November to April
Freesia . . . . .	January to March
Hyacinthus . . . . .	December to April
Libonia floribunda . . . . .	December to March
Lily-of-the-Valley (see Convallaria)	
Lindenbergia grandiflora . . . . .	November to February
Matthiola (Stock) . . . . .	Winter
Mignonette (see Reseda)	
Pelargonium, Zonal . . . . .	November to March
Primula malacoides . . . . .	December to March
Pycnostachys Dawei . . . . .	December to March
Reseda odorata (Mignonette) . . . . .	January to April
Richardia africana (see Zantedeschia aethiopica)	
Salvia splendens . . . . .	Autumn
Solanum capsicastrum . . . . .	November to March
Sparmannia africana . . . . .	January to April
Stock (see Matthiola)	
Tropæolum Lobbianum . . . . .	November to December
Wallflowers (Cheiranthus some vars.)	January to March
Zantedeschia aethiopica (Arum Lily)	January to April

## THE GREENHOUSE

### SOME FRAGRANT GREENHOUSE PLANTS

#### COLD HOUSE (Frost-proof)

Name	Flowering Period
<i>Cedronella triphylla</i> . . . . .	Summer
<i>Daphné</i> . . . . .	December to March
<i>Eucharis amazonica</i> . . . . .	Most of the year
<i>Hebenstretia comosa</i> . . . . .	Summer
<i>Humea elegans</i> . . . . .	Summer
<i>Itea virginica</i> . . . . .	June
<i>Jasminum</i> (White) . . . . .	Summer
<i>Lathyrus odoratus</i> (Sweet Pea) . . . . .	Spring and Summer
<i>Lavandula</i> . . . . .	Summer
<i>Lippia citriodora</i> . . . . .	Summer
<i>Lonicera</i> . . . . .	January, May and June
<i>Matthiola</i> (Stock) . . . . .	Spring and Summer
<i>Narcissus</i> , <i>Tazetta</i> vars. . . . .	December to March
<i>Roses</i> . . . . .	Spring and Summer
<i>Stock</i> (see <i>Matthiola</i> ) . . . . .	
<i>Sweet Peas</i> (see <i>Lathyrus odoratus</i> ) . . . . .	
<i>Syringa</i> (Lilac) . . . . .	March to June
<i>Trachelium cœruleum</i> . . . . .	May and June
<i>Viola odorata</i> (Violet) . . . . .	January to April

#### COOL HOUSE

(Temperature : Summer 55°–65°F., Winter 45°–60°F.)

Name	Flowering Period
<i>Acacia dealbata</i> (Mimosa) . . . . .	December and January
<i>Andropogon</i> . . . . .	All the year
<i>Bouvardia</i> . . . . .	Summer and Autumn
<i>Carnations</i> . . . . .	All the year
<i>Centaurea moschata</i> (Sweet Sultan) . . . . .	May and June
<i>Convallaria</i> (Lily-of-the-Valley) . . . . .	December to May
<i>Cytisus canariensis</i> . . . . .	February, March and May
<i>Daphne</i> . . . . .	December to March
<i>Datura suaveolens</i> . . . . .	Summer
<i>Eucalyptus</i> . . . . .	Most of the year
<i>Freesia refracta</i> . . . . .	January to April
<i>Geranium</i> (Scented Leaves) . . . . .	Spring and Summer
<i>Hedychium coronarium</i> . . . . .	Summer
<i>Heliotropium peruvianum</i> . . . . .	Spring and Summer
<i>Hoya carnosa</i> . . . . .	Summer
<i>Hyacinthus orientalis</i> . . . . .	Winter and Spring
<i>Lippia citriodora</i> . . . . .	Summer
<i>Martynia fragrans</i> . . . . .	Summer
<i>Matthiola</i> (Stock) . . . . .	Spring and Summer
<i>Mignonette</i> (see <i>Reseda</i> ) . . . . .	Spring, Summer and Autumn
<i>Narcissus</i> , <i>Tazetta</i> vars. . . . .	December to March
<i>Nicotiana affinis</i> (Tobacco Plant) . . . . .	Spring and Summer
<i>Pelargonium</i> (Cape or Sweet-scented) . . . . .	Spring, Summer and Autumn
<i>Reseda odorata</i> . . . . .	Spring and Summer
<i>Roses</i> . . . . .	Spring and Summer
<i>Salvia rutilans</i> . . . . .	Autumn and Winter
<i>Spironema fragrans</i> . . . . .	May
<i>Stock</i> (see <i>Matthiola</i> ) . . . . .	
<i>Sweet Sultan</i> (see <i>Centaurea</i> ) . . . . .	
<i>Syringa</i> (Lilac) . . . . .	March to June
<i>Trachelospermum</i> . . . . .	June and July



# THE GREENHOUSE

## PLANTS FOR BASKETS

(See also Ferns)

### COLD HOUSE

Name	Flowering Period
<i>Convolvulus mauritanicus</i> . . . . .	Summer
Creeping Jenny (see <i>Lysimachia</i> )	
Cup Flower (see <i>Nierembergia</i> )	
<i>Linaria Cymbalaria</i> . . . . .	Spring to Autumn
<i>Lysimachia nummularia</i> . . . . .	Summer and Autumn
<i>Mimulus</i> (Musk) . . . . .	Summer
Musk (see <i>Mimulus</i> )	
<i>Nierembergia gracilis</i> . . . . .	Summer
<i>Oxalis lasiandra</i> . . . . .	
<i>Saxifraga sarmentosa</i> . . . . .	June and July
<i>Schizocentron elegans</i> . . . . .	Summer
<i>Sedum</i> . . . . .	Summer and Autumn

### COOL HOUSE

Name	Flowering Period
<i>Achimenes</i> . . . . .	June to August
<i>Asparagus medeoloides</i> . . . . .	All the year
<i>Asparagus scandens</i> and <i>A. Sprengeri</i>	All the year
Bellflowers (see <i>Campanula</i> )	
<i>Campanula fragilis</i> , <i>C. isophylla</i> and <i>C. Mayi</i> . . . . .	Summer
<i>Epiphyllum</i> . . . . .	Winter
<i>Fuchsia</i> . . . . .	Summer and Autumn
<i>Geranium</i> (see <i>Pelargonium</i> )	
<i>Ivy-leaved Geranium</i> (see <i>Pelargonium</i> )	
<i>Lobelia Erinus</i> vars. . . . .	Summer and Autumn
<i>Lobelia tenuior</i> . . . . .	Summer and Autumn
<i>Macleania speciosissima</i> . . . . .	March and April
<i>Maurandia Barclayana</i> . . . . .	Summer
<i>Nepeta glechoma variegata</i> . . . . .	All the year
<i>Othonna crassifolia</i> . . . . .	All the year
<i>Pelargonium peltatum</i> vars. (Ivy- leaved geraniums) . . . . .	Spring, Summer and Autumn
<i>Pentapterygium serpens</i> . . . . .	April and May
<i>Petunia</i> . . . . .	Summer and Autumn
<i>Scirpus cernuus</i> . . . . .	All the year
<i>Thunbergia alata</i> . . . . .	Summer and Autumn
<i>Tropæolum</i> . . . . .	Spring, Summer and Autumn
<i>Zebrina pendula</i> . . . . .	All the year

## THE GREENHOUSE

### SOME GREENHOUSE PLANTS THAT MAY BE RAISED FROM SEED

Plant	Flowering Period	House	Time to Sow
Achimenes . . . . .	Summer . . . . .	Warm	September
Ageratum . . . . .	Summer . . . . .	Warm & Cool	March
Alonsoa . . . . .	April or July . . . . .	Warm & Cool	September or March
Amarantus . . . . .	Summer . . . . .	Cool	March
Balsam (Impatiens) . . . . .	June to July, September . . . . .	Cool	February to May
Begonia . . . . .	Summer . . . . .	Warm	February
Bouvardia . . . . .	Winter . . . . .	Warm	February to May
Brachycome . . . . .	April and June . . . . .	Cold	September and February
Browallia . . . . .	April and June . . . . .	Cool	September and February
Calceolaria (Herbaceous)	May to July . . . . .	Cool	May to July
Campanula . . . . .	April to August . . . . .	Cool	May to July
Candytuft (see Iberis)			
Celosia . . . . .	June to September . . . . .	Cool	February to May
Centaurea gymnocarpa and C. ragusina . . . . .	Summer . . . . .	Warm	February and March
Cineraria . . . . .	December to April . . . . .	Cool	May and June
Clarkia . . . . .	May to August . . . . .	Cool	September to March
Clivia . . . . .	March to May . . . . .	Cool	June
Coleus . . . . .	Summer . . . . .	Warm	February and March
Coronilla glauca . . . . .	March and April . . . . .	Cold	February and March
Cuphea . . . . .	Summer . . . . .	Cool	March
Cyclamen . . . . .	December to April . . . . .	Warm	August and September
Delphinium (Annual) . . . . .	April to June . . . . .	Cold	September and February
Dimorphotheca . . . . .	June and July . . . . .	Cool	February and March
Diplacus glutinosus . . . . .	April to September . . . . .	Cool	February to May
Eupatorium . . . . .	April to May . . . . .	Cool	February
Gerbera . . . . .	Summer . . . . .	Cool	February to April
Gilia . . . . .	April or May to July . . . . .	Cold	September or February to April
Gloxinia . . . . .	Spring and Summer . . . . .	Warm	January to March, and June or July
Godetia . . . . .	July and August . . . . .	Cool	February to April
Helichrysum . . . . .	June to August . . . . .	Cool	February to April
Heliotropium peruvianum	Summer . . . . .	Warm	February to April
Humea . . . . .	Summer . . . . .	Cool	May and June
Iberis (Candytuft) . . . . .	June to August . . . . .	Cool	February to April
Impatiens Sultani . . . . .	Summer . . . . .	Cool	March
Kalanchoe . . . . .	April and May . . . . .	Warm	March to May
Kochia trichophylla . . . . .	Summer . . . . .	Cold	March and April
Lantana . . . . .	Summer . . . . .	Cool	February to April
Lapageria . . . . .	April to June . . . . .	Cold	September, or February to May
Larkspur (see Delphinium)			
Lathyrus odoratus (Sweet Pea) . . . . .	April to July . . . . .	Cool	September, or February and March
Lippia citriodora . . . . .	Summer . . . . .	Cold	April
Lobelia . . . . .	Summer . . . . .	Cool	January to March

## THE GREENHOUSE

### SOME GREENHOUSE PLANTS THAT MAY BE RAISED FROM SEED (continued)

Plant	Flowering Period	House	Time to Sow
Love-in-a-Mist (see Nigella)			
Matthiola . . . . .	April and June . . .	Cool	September and February
Maurandya . . . . .	Summer . . . . .	Cool	February to April
Mignonette (see Reseda)			
Nemesia . . . . .	April and June to July	Cool	September, and February to May
Nicotiana . . . . .	April and June to July	Cool	September, and February to May
Nigella . . . . .	April and June to July	Cold	September, and February to May
Nycteria . . . . .	April and June to July	Cold	September, and February to May
Petunia . . . . .	Summer . . . . .	Cool	September, and February to April
Phacelia . . . . .	June and July . . .	Cool	February and March
Phlox . . . . .	Summer . . . . .	Cold	February to April
Polyanthus . . . . .	April and May . . .	Cold	May to June
Primula . . . . .	December to April .	Cool	April to June
Reseda (Mignonette)	April to September .	Cool	September, and February to May
Salpiglossis . . . . .	April to July . . .	Cool	September, and February to May
Salvia . . . . .	September and October	Cool	February to April
Scabious . . . . .	April and July and August	Cool	September and February to April
Schizanthus . . . . .	April and July and August	Cool	September, and February to April
Solanum capsicastrum .	Winter (Berried Shrub)	Cool	February to April
Statice . . . . .	Summer . . . . .	Cool	February to April
Streptocarpus . . . . .	March to May . . .	Warm	April to June
Stock (see Matthiola)			
Sweet Peas (see Lathyrus)			
Thalictrum . . . . .	April and May . . .	Cold	June to August
Tobacco Plant (see Nicotiana)			
Verbena . . . . .	Summer . . . . .	Cool	February to May
Violas . . . . .	April to June . . .	Cold	May and June
Viscaria . . . . .	April and June and July	Cool	September, and February to April

## IN THE POTTING SHED

It is most important to remember that pots that have been used should always be washed, otherwise any disease or fungus present in the old potting soil will be transferred to the next inhabitant of the pot. Besides, a dirty pot will not be porous, as it should be, to allow the air to permeate the soil. Even new pots should be put in water for at least half an hour, for a dry pot will draw away the moisture from the potting soil. The pot, however, must not be actually *wet* when used, as this would be almost as bad as using a dirty pot, for the soil and eventually the roots, would stick to it. For the winter, always store pots in a dry, frost-proof place: if they are dry, the frost will not hurt them; if they are wet, however, when the frost comes, it is almost certain that many of them will be ruined.

**The Compost.** Since the compost is the medium whereby the roots receive nutrition, water and air, it will be realised what an important part it plays in the life of the plant, and for this reason every effort should be made to give the compost best suited to the needs of each plant. The most usual ingredients of potting composts are: loam, which generally forms the greater part; leaf-mould; sand; old mortar rubble; well-rotted manure; and charcoal.

Mix the ingredients well together, but do not sieve the compost; this would rob it of much of its plant food and most of its porosity, large lumps must of course be broken up. Only for seeds and cuttings should the compost be sieved, and in this case through a quarter-inch mesh. Young plants with fine fibrous roots need a compost much finer in texture than do mature and vigorous plants being potted-on into their final pots.

The proportions in which the various ingredients are added to the compost vary in accordance with the requirements of individual plants and with the nature of the loam used, but the following may be taken as a suitable compost for the general run of the more common soft-wooded plants grown in our greenhouses:  $\frac{1}{2}$  part fibrous loam,  $\frac{1}{4}$  part leaf-mould,  $\frac{1}{8}$  part well-rotted manure and  $\frac{1}{8}$  part coarse silver sand.

The potting soil must be moderately moist, that is to say, if a handful is taken up and pressed firmly together, it should become moulded to the shape of the hand, but at the same time it should be dry enough to crumble as soon as it is disturbed. It should be stored in the potting-shed, and where

## IN THE POTTING SHED

greenhouse subjects are to be potted-up, the compost should be stored in the warm house for at least twenty-four hours previously to potting, if possible, so that the compost may be warmed up to the temperature of the house.

**Loam.** As a warning note it may first be stated that ordinary garden loam should not be used for the potting compost; it may be good enough for most plants grown in the open, but it will not be suitable to the choicer greenhouse varieties, and seedlings and cuttings will not thrive in it to full advantage.

The reason for this may not be immediately apparent, but a little thought will soon make the matter clear. In the open ground, the rain drains down through the soil gradually as it falls, but when hot, dry weather comes, it is gradually drawn up again and keeps the roots of plants moist and cool. In a pot, however, the small quantity of soil presents a comparatively large surface to the drying influence of air and sun, and is soon relieved of all its moisture. This means that, if the soil is to be kept at all moist, it will have to receive frequent doses of water. Now, if the soil used is ordinary garden loam, the constant watering will soon render it sticky, and eventually sour—in addition, should watering be neglected for a short time in hot weather, the soil will bake into a compact mass which will parch up the roots and exclude all air from them. Leaf-mould, however, is spongy by nature, will absorb a large quantity of water, and will retain it for the use of the roots. But, as this water gradually drains away, or is used up by the roots, the leaf-mould contracts and this creates a system of minute cells throughout the soil by means of which the air can permeate to the roots, and at the same time keep the soil sweet and clean. Sand also helps to keep the compost porous; and it is for this reason that it should, if possible, be added, with leaf-mould, to every potting compost, however fibrous the loam may be. Garden loam usually contains too large a percentage of clay, and is, therefore, too sticky by nature to be used as an ingredient in a potting compost; its place should, whenever possible, be taken by good fibrous loam from the meadows.

The best loam is found in the upper layers of the top-spit, just under the turf on meadows on which sheep or cattle have been grazed for a considerable number of years. Some of the best comes from the downs in Berkshire, Kent, Surrey

## IN THE POTTING SHED

and Sussex, and the gardener would do well to buy a little of this through his nurseryman. Kettering, in Northamptonshire, is also noted for good loam. If the soil from a local meadow is preferred, make a stack of the upper three inches of the top-spit, turf intact, and upside down, place decayed stable manure between each layer, and let the whole settle for at least a year. The grass will die, and its fibrous roots will make a good, porous mould. Loam should be moderately adhesive, but should crumble if rubbed between the fingers. It contains a large proportion of clay; if this is in excess, rather more leaf-mould or peat will have to be added to the compost to balance this, or it will become too sticky and retentive. Good fibrous loam is the foundation on which the compost for nearly all soft-wooded plants is built up, and where the other usual ingredients are lacking, it is quite possible to grow the more common soft-wooded plants, such as geraniums, in a compost consisting purely of fibrous loam, provided the latter is good. It should not be sieved, but large pieces must be broken up into lumps not greater than an inch in diameter. Ordinary garden loam, as explained above, cannot thus be successfully used as a complete potting soil.

**Leaf-mould.** This, like loam, enters into almost every compost, and is, as a rule, used in quantities up to one-third part of the whole bulk. Its function is to make the soil porous, so that air and water can permeate freely through it, but at the same time to retain a certain amount of moisture in the soil. It must, therefore, be light and open in nature; not black and soil-like as it so often becomes after rotting in damp, boggy woods. As its name implies, leaf-mould consists of the decayed leaves of trees; those of the beech and oak undoubtedly form the best mould. If leaf-mould is to be good, care must be taken in collecting and storing the leaves; they should be kept in the dry; if allowed to lie about and rot in the wet, as in ditches for example, the resultant mould will be of very little value, if not actually harmful to the plants. The leaves should be collected in a heap early in autumn and should be covered with a board or metal sheet to keep them dry. They should be allowed to decay for a year or eighteen months, and should be turned over every two or three months during this period, all sticks and other rubbish must be picked out, as these are liable to shelter pests and fungus spores. The decayed leaf-mould

## IN THE POTTING SHED

should be passed through a quarter-inch sieve; that not passing through the mesh being returned for further decomposition. Bake it for a short time, if possible, or sprinkle it with boiling water to kill any pests present.

**Sand.** This is included in the compost to make it porous, and should form a large portion, at least a tenth part, of any compost prepared for plants with fibrous and fine roots. For this reason it is an important constituent in composts used for sowing seeds and for striking cuttings. Coarse silver sand is excellent for the purpose; sea-sand may be used if it has had all its salt washed out of it. The ordinary reddish sand contains iron, is harmful to most plants, and cannot therefore be used.

**Old Mortar Rubble.** Mortar rubble is a constituent in many composts; not only does it help to keep the soil open, but it supplies lime, so necessary to many plants. The older it is the better; it should be stored in the dry, as damp will rapidly rob it of its properties.

**Manure.** New and crude manure should never be used in a potting compost. It will burn the tender roots of most pot plants. Manure for this purpose should be well-decayed and should be stored in the dry where the rain cannot wash away its manurial value. Any farmyard manure may be used, although most gardeners prefer cow or sheep manure for potting purposes. The better the animals have been fed the more valuable will be their manure—it always pays to buy good manure, even if it is, at first cost, more expensive. Potting manure must be dry, and must be passed through a half-inch sieve before being incorporated in the compost; if it is possible to bake it for a short time before it is used, no anxiety need be felt about attacks from eelworms, wireworms and other soil pests. When the manure can be stacked with the loam as described on page 235, it will ensure it being well decayed; it can then be sterilised with the loam. Manure should be added to composts only for vigorous and mature plants, and even then the proportion should never exceed one-sixth part of the whole compost. Seedlings and cuttings should not be given any animal manure when first potted up, a compost of loam, leaf-mould and sand proving quite adequate for most of them. Artificial manures should never be incorporated in the compost; they may be added later as top-dressings when the flower buds are forming. See also Manure, page 43.

## IN THE POTTING SHED

**Peat.** This is composed chiefly of sand and decayed vegetable matter, and is very porous. Rubbed through a half-inch sieve and mixed with loam it forms a well-drained compost suitable to such plants as ferns, palms, heaths, azaleas, some orchids, and many others. For all the first-mentioned plants the peat should be sandy and of fairly close texture, but orchids prefer it more open and fibrous. Dark peat from bogs is useless in the potting compost. Stack peat under cover. Acid peat should be used, alkaline peat being useless for many plants.

**Charcoal.** This is an invaluable ingredient of the compost as it helps to keep the soil sweet. It should be crushed up very fine and mixed with the compost at the rate of one-part to every fifty parts of compost, or it can be used in small lumps as drainage matter in lieu of crocks. When used in this latter way, it also keeps the soil sweet.

**Size of the Pot.** Flower-pots are generally made in what are termed "casts"—that is to say, a certain quantity of clay is taken, from which one pot is made, or two, four, six, eight, twelve, sixteen, twenty-four, thirty-two, forty-eight, sixty, or eighty; and pots are therefore, known to gardeners as ones, twos, fours, etc., according to the number of pots made from a single cast.

The following table shows the inside measurements of the pot-sizes in general use.

Sizes	Diam. Top in Ins.	Depth in Ins.	Sizes	Diam. Top in Ins.	Depth in Ins.
Thimbles . . .	2	2	Sixteens . . .	9½	9
Thumbs . . .	2½	2½	Twelves . . .	11½	10
Sixties . . .	3	3½	Eights . . .	12	11
Fifty-fours . .	4	4	Sixes . . .	13	12
Forty-eights .	4½	5	Fours . . .	15	13
Thirty-twos .	6	6	Twos . . .	18	14
Twenty-fours .	8½	8	Ones . . .	20	16

When potting always put a plant into a pot slightly too small rather than too large. Unless the plant is very pot-bound, or is required to grow very quickly (as in the case of many young and growing plants), put the plant back in the same sized pot if possible. Many gardeners like to have 1 inch of soil between the "ball" and the sides of the pot.

More harm than good will be done by trying to save work or to force a plant on by putting a small subject into a pot too large for it. The small roots will be unable to make



## IN THE POTTING SHED

use of all the moisture and plant food in the soil ; this hangs about in the compost and it is a long time before any fresh air is able to enter, so that the soil becomes clammy and finally sour. For this reason pot-up into small pots, re-potting frequently as the plants grow and the roots become pot-bound. It is rarely necessary to move a plant into a pot more than two, at the most, three, sizes larger than the old one. As soft-wooded plants are, as a rule, vigorous growers, they may usually be put into proportionately larger pots than would be advisable for the slower-growing hard-wooded plants.

**Time to Re-pot.**—The season at which a plant should be re-potted depends on whether the "ball" is to be broken up, as for instance when a plant from the open ground is to be potted-up or when a plant has to be re-potted because the soil is old and sour, or whether the "ball" is to be left practically intact as when a growing plant is to be "shifted" into a slightly larger pot. In the latter case, the operation can be performed at any time when the plant is in fairly active growth, as the roots will at once go ahead and take possession of the new soil. Where the "ball" is to be broken up, however, re-potting can only be undertaken just as the roots are beginning to come into active growth, at which time they will be able to penetrate the new compost. If the "ball" were broken up when the roots were not in their most vigorous state, the young root-matter could not fail to be badly damaged and in consequence would be unable to recuperate in sufficient time to penetrate the fresh compost before the "resting" period set in, and the new soil would become sour before it could be occupied.

It is a good plan, during the growing season, to turn a plant or two of each batch of a similar kind out of their pots ; whether they are biennials being grown on for greenhouse use, soft-wooded perennials, or hard-wooded plants. It may then be seen whether re-potting is necessary. As soon as the roots begin to wind round the sides of the pot, a larger one should at once be given unless the "resting" season is approaching, when potting should be held over till the plants again become active. They make most growth in April and May and again in August and September. The best time to re-pot, therefore, is just before this growth commences, that is to say, about March and again in August and early September. March is the better time at which to

## IN THE POTTING SHED

re-pot established plants, as growth in spring is more vigorous than in autumn, and new material will then be of more use to them.

**Drainage and Compost.**—Small pieces of broken pots, technically call "crops," should be placed over the hole at the bottom of the pot. For cuttings which are not intended to remain in the pot for any length of time after they have rooted, a single piece of crock, convex side uppermost, is sufficient, but when the time of tenancy is likely to be prolonged to months, and perhaps even years, it is necessary to fill one-sixth, and in some cases as much as one-fourth, of the entire depth of the pot with broken crops or potsherds.

As soon as the "crops" are in and a little coarse mould has been thrown over them, some fine mould should be put in and shaken together by gently knocking the edge of the bottom of the pot against the potting-bench, or by striking the sides of the pot gently with the hand. This soil at the bottom of the pot should be just sufficient to lift the plant so that the top of the "ball," when set in the new pot is within  $1\frac{1}{2}$  inches of the rim of the pot—when firmly planted and covered with  $\frac{1}{2}$  to 1 inch of new soil, it should be 1 inch below the rim in a large pot and  $\frac{1}{2}$  inch below the rim in a small pot.

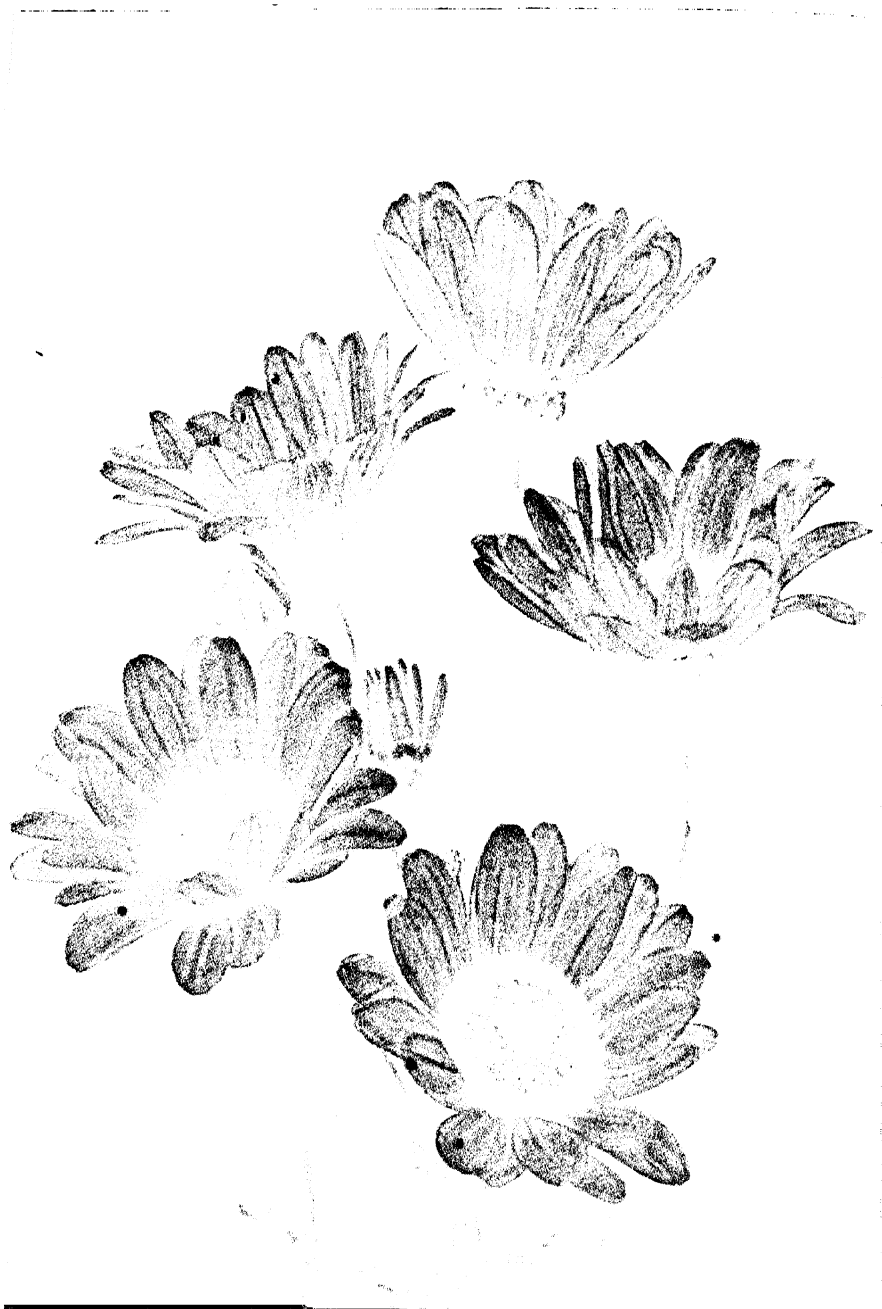
**The Operation of Re-potting.**—If necessary the plants to be re-potted should be watered an hour or so before the work is to take place, so that the "ball" of earth round the roots may be just moderately moist; if too wet the fibrous roots may be torn; if over-dry the small roots will find great difficulty in becoming established in the new compost. Now turn the pot upside-down, placing the first and second finger of the left hand so that the stem lies between them while the palm and fingers lie across the top edges of the pot, and grasp the bottom of the pot, which is now uppermost, with the right hand. Next tap the rim of the pot gently on the edge of the potting-bench, and the roots and soil will come out complete, being supported by the left hand, as the pot is removed by the right. Care must be taken that the plant and soil do not drop from the pot. Should the plant "ball" not come out of the pot, the finger or a small blunt-headed stick should be inserted through the drainage hole at the bottom of the pot, and if gentle pressure is applied, the "ball" will soon be moved from the pot.

## IN THE POTTING SHED

As soon as the old pot has been removed, the crocks, any sour soil and dead roots, must be carefully extracted so that the roots are not bruised, and some of the thickest roots should be drawn out from the "ball" with a pointed stick; these will establish themselves in the new soil round the sides of the larger pot. Now place the "ball" on the soil already in the pot so that the plant will be quite central, and pack the soil with the hand or trowel between the "ball" and the sides of the pot on the bench, consolidating the earth by knocking the pot on the bench, and pressing the compost down round the sides with a potting stick, or the thumb, which is more convenient when dealing with the smaller sizes of pots. Press the new soil firmly about the collar of the plant with the thumbs. Keep the new soil *level* with the top of the old "ball." The collar should not be raised above the general level, but to depress it beneath is certain death to hard-wooded plants. All plants, however hardy, should be kept warm and moist for a few weeks after re-potting, especially if they have received a large shift. The growth of the roots is thus promoted—a point of great importance at this stage.

Remove from the "ball" only that soil that is really sour; it is a mistake to disturb the roots if the soil is still fresh; if, however, the compost has become very sour, all the soil must be removed and the roots must be well washed through with luke-warm water, any dead or diseased parts being cut away.





[Malby

URSINIA "Advance."

## THE GARDEN FRAME

In laying down the frame the substance used to form the bed will depend upon the uses to which the frame is to be put. If pots or boxes are to be kept in it, a dry and hard bottom of ashes or shingle, some 3 inches deep, is admirable ; this will keep out worms and other pests and will afford good drainage. If a seed-bed is made, support the four corners of the frame with bricks, place a layer of leaves at the bottom and cover with 6 inches of well-sieved compost consisting of loam, leaf-mould and sand. Make the bed firm and sprinkle the surface fairly liberally with coarse sand. See Making a Seed-bed, page 163. The bed must, in any case, be made up so that the surface is not more than 6 to 9 inches from the glass, otherwise the plants will soon become weak and drawn-up.

**Cold Frame.**—Lean-to frames must face due south so that they may get full sun, unless shade and a low temperature are necessary, when the frame should face north. Span-roof frames are excellent, as the lights can be opened on either side and it is, therefore, possible to ventilate, whatever the direction of the wind. The span-roof frame should be placed so as to run north and south ; either side then gets its proportion of sun.

**Heated Frame.**—Here the heat is either supplied by means of 3 or 4 inch hot-water pipes along the front and back of the frame, or through the medium of a hot-bed upon which the frame is placed.

Management is in all respects identical with that of the cold frame, except that even more care must be given to correct ventilation and to the steady maintenance of an even temperature.

With a heated frame and a temperature of from 60° to 70°F. it is not only possible to raise plants for early transplanting to the open, but by careful management a sequence of crops of almost any vegetable can be had practically the winter through, until the vegetables from the open are ready to take their place.

## MAKING A HOT-BED

At any time of the year hot-beds are made up to suit requirements. For example, if it is desired to have cucumbers at Christmas, the bed must be made early in October; if in January, early in November; and so on in proportion. Somewhat less than three months being required from the time of planting to the time of ripening fruit at this time of the year.

Suppose it is desired to commence in October, a quantity of stable dung not more than three weeks old should be collected, proportioned to the size of the frame; two double loads for a three-light frame are usually allowed for the body of the bed, but it is as well to add an additional load, in which to start the plants. Having shaken it all together, laid it out for a week, and then turned it over again, take rather less than one load and make a bed for a one-light frame. This may be put together roughly, as it is merely to raise the plants in, and may be pulled to pieces when that is accomplished. The remainder of the dung should be thrown up into a heap, being turned over four or five times during a fortnight, and wetted if dry. In order to prevent the material from becoming too hot, and burning the roots of the plants, it is advisable to mix an equal quantity of leaves with the dung for the bed.

As soon as the material is ready, measure the frame, length and breadth, and mark out the bed, allowing 18 inches more each way for the bed than the length and breadth of the frame. At each corner of the bed, drive a stake firmly into the ground and perfectly upright, to serve as a guide by which to build the bed. Then proceed to build the bed, shaking up the dung well and beating it down with a fork. The whole should be equally firm and compact, so that it is not likely to settle more in one part than in another. The bed should be about 4 feet high at the back and 3 feet high in the front. The frame and lights may now be placed in the centre, but the lights should be left off, so that the rank steam may escape. When the rank steam has passed off, which generally takes five or six days, place a 9- to 10-inch layer of good loam under each light. By the next day this will be warmed to the temperature of the hot-bed, and the plants may be planted in it. No matter how small the plants are, it is better to raise them elsewhere than in the bed in which they are to grow.

## MAKING A HOT-BED

The seed bed can be made when the dung has lain the first week. In three days, the rank steam will have passed off. A few pots with soil may then be put in the frame. The next day, the seed may be sown in these, two in each pot. When the principal bed is ready, turn out the pots with a 'ball' of earth, and sink the roots in the new soil so that an inch or so of it covers the "ball." If the bed now gives a moderate heat of 75 deg. to 80 deg. F., the plants will soon root into the new soil.

## SOIL STERILIZATION

Sterilization cannot, save the process of burning to be described later, be applied to any great extent to ground in the open, and is generally confined to soil used in pots and the borders of glass houses. The process consists in burning, or heating the soil to such a degree that all pests and seeds of weeds are destroyed and plant growth is stimulated.

In sterilized soil plant growth will at first be slow in growth, as numbers of the bacteria which promote this are destroyed with the pests. Those remaining, however, are free from the influence of pests and quickly multiply, so that after a time the growth of the plants becomes surprisingly vigorous and rapid. After sterilization, the addition of superphosphate at the rate of 2 oz. to the hundredweight of compost will be found advantageous.

There are, however, a few points which must be remembered in connection with soil sterilization. It must take place *before* the compost is made up, not after. Also, the soil must not be heated for too long a period. From ten minutes to a quarter of an hour is ample, and the temperature to which it should be raised is 180°F. If the soil is heated to above 212°F., damage may be done and substances harmful to plants may be produced. The other ingredients of the compost, such as leaf-mould and sand, do not need sterilization. A thermometer should always be used to test the temperatures. Below are described some of the methods by which soil sterilization may be effected.

Steaming is the most effective but the most difficult process. If, however, this method cannot be used, one of the other more "rough and ready" ways can be employed.



## SOIL STERILIZATION

### FOR A SMALL AREA

**Steaming.** Here is a very effective but rather difficult process. A wooden box is constructed with several parallel pipes running at intervals across the bottom; these pipes are riddled with holes. The box is filled with soil, previously well sieved and dry, and covered over the top, and steam at the pressure of 70 lbs. to the square inch is forced along the pipes and up through the soil until it is heated to a temperature of 180°F. or as near that as possible. This temperature should be maintained for from 10 to 15 minutes. Steam sterilizers, working on much the same principles as the above, are on the market. They take from three-quarters of an hour to an hour and a half, according to their design, to raise the soil to the required temperature. With the proprietary apparatus, when the necessary heat has been reached, the soil must be removed at once.

**Scalding.** In this method, the pots filled with compost ready for planting have boiling water poured over them until the soil is thoroughly heated all through. They are then well drained and allowed to cool before planting. Should a larger quantity of soil require treatment, put it in a wooden box and proceed as described for the single pots. The process should be lengthened considerably in order that the larger quantity of soil may be thoroughly sterilized.

If preferred, a pail full of the soil may be stood in a bath of boiling water and left there until the soil is thoroughly heated through and through: a fire must be kept burning under the bath or the water will cool before sterilization is complete.

**Baking.** In this method the soil is placed in a shovel, or is spread thinly on a metal sheet over an open fire, and is heated until the soil cannot be grasped and held in the hand. The moisture will evaporate in steam, but the soil must be removed from the fire before actual smoke appears. After baking, the soil should be well mixed and must have nothing planted in it until two days have elapsed. Another method of baking the soil is to insert red-hot bricks in it. Sufficient bricks must be used to heat the soil adequately, or they must be re-heated and moved about in the compost until every corner has been sterilized.



[C. W. Teager.

MIMULUS (MUSK OR MONKEY FLOWER).

M M.S.

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## SOIL STERILIZATION

### FOR A LARGER AREA

**Burning.** Here, all available combustible garden refuse, such as straw, hard and fibrous vegetable matter, and leaves are collected and spread evenly over the soil to be treated. This refuse is set fire to and encouraged to smoulder, rather than to burn fast, so that the process of burning is spread over the longest possible period. This method is best pursued in the late autumn or early winter, at which time the pests will be nearest the surface of the soil. Apart from the sterilisation effected by the heat, the ashes will greatly benefit the soil.

### DISEASES AND PESTS

It cannot be too strongly impressed that every effort should be made to detect the presence of disease at the earliest moment and to treat it immediately. Also, in order that the diseases and pests of plants may be controlled it is essential to understand the nature of the complaint, whether it is due to insects, fungi or bacteria. All trees and bushes should be kept free from mosses and lichens, which harbour pests, by periodical spraying in winter or early spring with one of the cleansing washes given on page 248. We would impress upon the reader the importance of winter spraying and the great value of preventive measures, which are far more effective than treatment afterwards.

All insects, however, are not harmful to the garden. The centipede, for instance, devours soil grubs, the hover-fly attacks green-fly, the ichneumon fly, while in the grub stage, devours other caterpillars, and the ladybird is a great enemy of the green-fly.

We can divide insect pests into two classes: firstly, those like aphides (green-fly) that puncture the bark and tissues of the young shoots and fruit, and suck the sap, and secondly, those that feed on the outer tissues of shoots and leaves. In this latter class are included most beetles and caterpillars. The former class, the suckers, must be controlled by the use of "contact" insecticides, that are sprayed actually on to the bodies of the insects themselves. These insecticides poison the pests through the breathing pores in the bodies, the soap in the solutions also helping to clog the pores; they

## DISEASES AND PESTS

should be applied with considerable force in a spray from a moderately coarse rose. The second class of pests, the eaters and biters, are more easily controlled, for it is possible to cover their food with a thin film of poison; if the whole plant is sprayed they will sooner or later be forced to eat the poison. To ensure that every particle of available food shall be poisoned both sides of the foliage and all parts of the branches must be thoroughly covered with the solution. This must be applied in a mist-like form from a sprayer with a very fine rose, so as to produce an even film over the leaves and twigs; as soon as the insecticide begins to drip from the foliage the spraying must cease. The actual insecticide employed depends upon the pest to be controlled and the season of application, for the poisonous effects of some solutions if they come in contact with fruit or vegetables are very lasting; such poisonous washes must not be used within a certain time of the harvesting of the crop.

Many of the insect pests of fruit trees, particularly aphides and caterpillars, which spend the winter in the egg stage, can be destroyed by spraying the trees in late January with one of the Tar distillate (or tar-oil) washes.

## FUNGOUS DISEASES

In the case of fungous diseases efforts should be directed rather at prevention than cure, for fungi, once established, develop rapidly, and in the later stages little can be done to remove them. If the fungus does become established the earliest possible opportunity should be taken of controlling it. When trees have been attacked by fungus in the previous season all dead wood and "mummied" fruit should be cut out in winter and burned, care being taken to cut back to healthy wood. In early spring, the trees should be syringed with a fungicide projected on to the branches in a fine spray.

Should an attack occur in spring or summer, a fungicide must be used in the same way, all parts likely to be attacked—foliage, bark and fruit—being sprayed until the solution commences to drip off. It may be found necessary to make a second, or even third, application at intervals of about three weeks. Two of the most useful fungicides are Bordeaux Mixture and Lime Sulphur (see pages 248 and 249)

## DISEASES AND PESTS

### FUMIGATION (GREENHOUSE)

Before fumigation takes place all ventilators should be closed and all broken or cracked lights and all roof ventilators which are likely to leak should be covered with damp matting. Where convenient, plants which are in full flower should be removed during the process. Most gardeners will find the fumigating or vaporising materials sold ready for use, with the necessary apparatus for burning, highly satisfactory; the makers give detailed instructions which should be closely followed. Where the house is badly infested with any insect pest, it should be dealt with two or three times on successive evenings; this is almost always necessary when extirpating the red spider. The next morning, or when the fumes have thoroughly cleared, open the doors and ventilators and go round the house with the syringe and warm soft water, and free all plants from dead insects. The best time for fumigation in the greenhouse is the evening in calm, fine weather, or in the morning on a dull, windless day.

### GREASE BANDING

The purpose of grease banding is to prevent the winter moth and other insects from crawling up the trunks of fruit trees to lay their eggs. The stems are encircled early in September with bands, 10 to 12 inches wide, of some material which the crawling moth will be unable to pass; such materials as brown paper coated with cart-grease mixed with tar, or any other coarse grease of the kind; special bands may also be purchased. The bands, if possible, should be placed from 4 to 5 feet from the ground. If the bark is rough and uneven, soft putty should be smeared over the bark to be covered by the band and should then be well rubbed in till an even surface is formed to take the band. Do not forget also to grease-band the stake supporting the tree. The bands should remain in position until the following May. In the case of bush fruit, spraying is the better method. The bands should be kept greased at intervals throughout the winter and early spring, as the grease frequently becomes hard and will allow the pests to pass. Strips of sacking and haybands, some 6 inches wide, may also be tied round the stems of the trees, about a foot from the ground, to catch the caterpillars of Codlin moths, climbing up in June and July. It is best to remove them at the end of September or early in October, replacing them by the grease bands. All bands removed should be burned at once.

## SPRAYING GUIDE

For garden use the "knapsack" type of machine is the most handy. Most machines have variable nozzles that can produce a fine, medium, or coarse spray as required. The spraying should be thorough, both upper and under sides of the foliage receiving attention, and should always be carried out in the evening, just before sunset.

### WINTER WASHES

Preparation	How to Apply	Principal Use
<b>Tar Distillate Washes.</b> —Use according to makers' directions; usually 1 part of concentrated liquid to 14 parts of water.	Spray vigorously during late January. Must be used only on dormant trees.	Nearly all insects which winter on trees. Cleans up bark; removes moss, etc.
<b>Lime Sulphur.</b> —Boil 5 gallons slaked lime and 5 lbs. flowers of sulphur in water for about 1 hour, stirring meanwhile; make up to 25 gallons. Harmless to foliage.	Apply when trees are dormant in winter. Strain before use, and do not use apparatus having copper fittings. Give second and third applications at 3-weekly intervals.	Apple scab, apple sucker, black beetles, blister mite, flower beetles, mildew, brown rot, red spider, scale, scab, weevils, and woolly aphids.

Washes of this kind are applied not only to destroy what insect and fungus pests they come in contact with, but also to remove lichen and moss from the bark of trees. The use of these washes is a most necessary, but unfortunately a much neglected operation, as the lichen and moss form an ideal hiding-place for insect and fungus pests.

### SPRING SPRAYING

Preparation	How to Apply	Principal Use
<b>Arsenate of Lead.</b> —Dissolve 1 oz. arsenate of soda, 2½ oz. sugar of lead in 14 gallons of rain-water, then add 1½ lb. black treacle. Harmless to foliage. ( <i>Poison.</i> )	During spring in fine spray on fruit trees, as soon as petals fall and leaves form. Garden flowers and roses. This insecticide is poisonous, never use it on vegetables or fruit.	Fruit tree caterpillars, winter moth, lackey moth, magpie moth, tortrix moth, slug-worms, cherry saw-fly, beetles, goat moth and gooseberry sawfly.
<b>Lime Wash.</b> —Slake 6 lb. of quicklime with a little water, then dilute to 5 gallons. See that the lime is not air-slaked before use. Stir well.	A wash for applying to the trunks of fruit trees just before the bloom opens. Strain two or three times before use in sprayer.	Aphides, lichen and mosses on tree trunks. A good insecticide, also an excellent cleansing wash.
<b>Nicotine Emulsion.</b> —Boil ½ lb. soft soap and 1 quart tobacco extract in a little water, dilute to make 3 gallons with water. ( <i>Poison.</i> )	Apply as coarse spray on fruit trees as soon as blossoms fall and leaves form. Must be used at least 14 days before fruit or vegetables are gathered.	Aphides, apple sucker, black fly, celery fly, green fly, sawfly grubs, caterpillars, white fly, leaf-miners and woolly aphids.

# SPRAYING GUIDE

## SUMMER SPRAYING

Preparation	How to Apply	Principal Use
<b>Bordeaux Mixture.</b> — Dissolve 1 lb. sulphate of copper in boiling water; then slake 1 lb. freshly burnt quicklime in a little boiling water; mix well and dilute to 10 gallons with water. Stir well, and use.	Apply to half-grown potatoes or other plants early in summer. An excellent fungicide. If necessary make second and third applications at intervals of 3 weeks.	Apple scab, leaf curl, leaf spot, onion mildew, tomato canker and vine mildew.
<b>Burgundy Mixture.</b> — Similar to Bordeaux Mixture, except that 1½ lbs. of soda is used instead of 1 lb. of lime.	Apply during July and August.	Potato blight.
<b>Carbolic Emulsion.</b> — Dissolve ¼ lb. hard soap in ½ gallon water, add ½ pint carbolic acid, boil, stirring meanwhile. Dilute with 25 parts water as wanted.	Useful for summer spraying and as fungicide. Good surface spray. Label "Poison."	Turnip fleas, bean and pea weevils, cabbage moth larvæ, eelworms, and leather-jackets.
<b>Naphthalene Emulsion.</b> — Dissolve ¼ lb. crushed naphthalene, in ½ gallon paraffin; boil 1 lb. soft soap, stir in other ingredients. For use, dilute with 50 parts water.	Spray for summer use. Mixed with liver of sulphur for red spider, should be repeated in three days.	Ants, bean and pea weevils, cabbage moth larvæ, eelworms, leather jackets, and turnip fleas.
<b>Paraffin Emulsion.</b> — 1 lb. soft soap in 1 gallon rain-water, while hot mix in 1 gallon paraffin by means of syringe. When required for use dilute with rain-water to 20 gallons.	Stringent summer wash and soil spray.	Apple sucker, aphides, bean and asparagus weevils and beetles, mussel scale, onion and carrot fly, red spider, turnip fleas and woolly aphids.
<b>Quassia Emulsion.</b> — Steep 1 lb. quassia chips in 1 gallon water for 12 hours, melt ½ lb. soft soap and add, make up with water to 8 gallons.	Use in warm weather after showers.	Black fly, green fly, hop aphids, red spider and woolly aphids.



## SOME COMMON DISEASES AND PESTS

**American Blight or Woolly Aphids.** American Blight is very difficult to get rid of. The aphides are usually dark purple in colour. They derive their name from the masses of downy white wool with which they cover themselves. *Treatment.*—Immediately the fruit has been gathered, spray the affected trees with a paraffin emulsion or with any good insecticide. In autumn, too, the soil round the trees should be dressed with naphthalene at the rate of  $1\frac{1}{2}$  lbs. per rod. A spraying with a tar distillate wash or improved Woburn Wash in January is also a more or less complete control.

**Ants.**—If sugar is sprinkled round their haunts, preferably in early spring, the ants will reveal their nest by carrying the sugar into it. Saturate the nest with paraffin or some strong disinfectant, or destroy it with boiling water. Empty honey jars or old treacle tins make good traps for the little pests, and hundreds may be easily destroyed by plunging the infested traps into boiling water.

**Aphides.**—See Greenfly.

**Beetles.**—See Chafer Beetles.

**Big Bud.**—When plants are affected with this disease the buds swell up to an abnormal size and die off. The cause is a small mite which enters the bud and multiplies. The mite breeds chiefly in autumn and spring, at which times it rapidly spreads from bud to bud and from plant to plant as in Currant Bud Mite. *Treatment.*—Badly-diseased plants should be rooted up and burned; less severe cases should have all affected buds removed and burned, the buds immediately above and below the diseased ones being picked off on trees and bushes that are only slightly affected. Spray the soil with a strong insecticide. A winter spraying with a tar distillate wash will prove an effective check. If the invasion has been so heavy that most of the bushes have had to be destroyed, it is safer to make a new plantation on a different site. The plants most usually affected are Currants (Black and Red).

**Bulb Mite.**—This mite causes the foliage to turn yellow and the bulb eventually to rot. It is a dirty reddish-white mite and attacks bulbs and tubers, notably those of the hyacinth, lily, hippeastrum, eucharis and other bulbs grown indoors under glass. *Treatment.*—Soak the bulbs for some 20 minutes in soapy water at a temperature of  $125^{\circ}\text{F}$ .

## SOME COMMON DISEASES AND PESTS

**Canker.**—In this disease the fungus enters through a wound in the stem, however small, and the disease becomes apparent as small concave patches. These increase in size, the stem swells and cracks, and large deep wounds are formed. Concentric rings appear round the wound. If treated in the early stages, the plants may usually be saved. Few diseases are more destructive than canker. *Treatment.*—Spraying is of no avail. All affected shoots must at once be cut back to sound, healthy wood, the diseased parts being burned. The cut surfaces should be painted with Stockholm tar or with white paint. Badly cankered trees and bushes are best destroyed. Low-lying, ill-drained, and heavy soil predispose the plants to attack.

**Caterpillars.**—Caterpillars cause havoc in the garden. Especially those of the following moths: Brindled Beauty, Brown-tail Moth, Buff-tip Moth, Lackey Moth, Leaf-roller Moth, Mottled Umber Moth, Pale Tussock Moth, Tortrix Moth, Vapourer Moth, and Winter Moth. They are all biters, and their food is easily poisoned by means of spraying. *Treatment.*—Spray the foliage with arsenate of lead solution or the non-poisonous Derris preparation, in summer, or, if preferred, careful hand picking may be resorted to.

**Chafer Beetles.**—In the garden three species of chafer beetle are usually found. Firstly, the Cockchafer, which is about an inch long, and appears in May and June. Secondly, the Summer Chafer, which is about two-thirds of an inch in length, and appears in June and July. And thirdly, the Garden Chafer, which is about half an inch in length, appears in June and July, and feeds on the petals and stamens of the blooms. The eggs of all three species are laid in the ground, and the grubs, which are a dirty white in colour with brownish heads and tails, feed on the roots of plants and trees. *Treatment.*—In spring or autumn dig naphthaline into the soil at the rate of 2 cwt. to every acre. Pick out all grubs while the soil is being dug over, and make a trap by placing a piece of turf upside-down on the ground; the grubs will collect under the turf.

**Cherry and Pear Sawfly.**—The tiny, greenish-black slug-like larvæ of the Cherry and Pear Sawfly devour the soft tissue of the leaves, leaving nothing but the ribbed veins and the hard skin of the leaves, which turn brown and wither up. In bad cases, where every leaf may be attacked, the plants are completely crippled. *Treatment.*—Spray with arsenate of

## SOME COMMON DISEASES AND PESTS

lead as soon as the damage is noticed. Naphthalene should be dug into the soil round the trees or bushes in the autumn at the rate of  $1\frac{1}{2}$  lbs to the square rod.

**Codlin Moth.**—One of the most destructive as well as the commonest moths that attack apple-trees is that named from its habitat, the Codlin moth. "Worm-eaten" apples are those which have been spoiled by the larvæ of this insect. The moth lays its eggs singly, one in the eye of each fruit, and fixes it inside the calyx with a gummy fluid. As the little apple grows and swells, the grub eats its way further and further in, until a little before the fruit would normally be ripe, the maggot has reached its core, feeding upon the pips, a proceeding which causes the fall of the fruit. The caterpillars, released from the fallen apple, creep up the tree-stem until they find a sheltered crack in which they pass the other stages of their life, till the perfect moth emerges in the following spring to repeat the process. *Treatment.*—The chief preventive operation is grease-banding (see page 247). Gather and destroy all prematurely fallen fruit and spray the trees with insecticide as soon as the blossoms fall in spring.

**Cockchafers.**—See Chafer Beetles.

**Cuckoo Spit.**—See Frog Hopper.

**Currant Bud Mite.**—See Big Bud.

**Earwigs.**—Owing to their propensity to hide in any sheltered spot during the day these are easy to trap. Thus a handful of straw, shavings, or hay, pushed lightly into a flower-pot and stuck on a stick will be found full of earwigs in the morning, if they are about in any numbers. Crumpled paper, pieces of corrugated cardboard, hollow stalks, and all such things make effective earwig traps. A good poison bait may be made as follows:  $\frac{1}{4}$  of a pint of treacle,  $\frac{3}{4}$  of a pint of water, 1 ounce of Sodium fluoride and 1 lb. of bran. Thoroughly dissolve and mix into a moist (not wet) mash, and place in crevices, etc. of woodwork where earwigs can find it.

**Frog Hopper.**—This yellow insect causes the trouble known as Cuckoo Spit. The female hopper lays her eggs on the plant, and the grubs suck the sap from the stems and leaves covering themselves meanwhile with the well-known frothy substance known as "spittle" or "spit." They are prevalent from May to July and greatly retard the development and growth of the plants. *Treatment.*—Spray with nicotine or paraffin emulsion. Project the spray as forcibly as possible to wash away the covering of froth and thus enable





NASTURTIUM "GOLDEN GLEAM."

[C. W. Teager.

## SOME COMMON DISEASES AND PESTS

the substance used for spraying to come in actual contact with the insects.

**Greenfly.**—This is the common name for all the many species of aphid, probably from the brilliant green of the aphid affecting the rose. Many kinds of aphid are, however, coloured differently; white, reddish, and black aphides being as common as the green. Aphides are sucking insects, not chewing ones, so that in order to deal with them, it is not enough merely to poison the surface of their food plant, as is the case with caterpillars and such creatures. The aphides pierce right through the poisoned surface and suck the juices of the plant, so that, to deal with them at all effectually, the insecticide has to be applied directly to their bodies. The best way to do this is to spray the plants on which the aphides are found with a solution of soft soap and quassia chips, with nicotine water, or with paraffin emulsion (see page 248), the spraying being done directly on to the insects themselves and as soon as possible after the pests are discovered. All these insecticides are better used slightly warm. Where possible, as in the case of choice rose trees, they should be gone over with a stiff paint brush, all the aphides being either brushed off or killed by squashing with thumb and finger. Alternatively, the infested shoots may sometimes be turned down and actually immersed in the insecticide.

The insect which deposits the sticky substance known as "Honeydew" is an aphid, and on this gummy substance a fungus grows, which is known as "sooty mould," and does a great deal to weaken the plant by blocking up the pores on the surface of the leaves, and thus suffocating the plant. A lime wash applied in March is very effective against these honeydew producing aphides. The black fly is especially common on broad beans, where the tips of the shoots and under sides of the leaves are affected, and it also delights in the large oriental and other poppies. Special efforts should always be made to exterminate aphides in spring and autumn. If roses or other plants under glass are attacked by greenfly, they must never be sprayed, but should be fumigated.

**Leather Jackets.**—These do great damage to the roots of many plants during summer, winter and spring, feeding just below the soil and working their way right into the centre of large roots, and, in damp weather, and at night, attacking the stems of the plants. Leather Jackets are the grubs of Daddy Longlegs, or Crane-flies as they are sometimes

## SOME COMMON DISEASES AND PESTS

called, which need no description. These flies should not be confused, however, with the Daddy Longlegs spider, which is quite harmless. The Leather Jacket is so called because of its hard leathery skin. It has no legs, is cylindrical in shape, and of an earthy-brown colour. The head is black and the tail-end is blunt with several short finger-like projections. *Prevention and Treatment.*—Break up new land thoroughly in the summer, as the grubs will soon die if exposed to hot sun and dry soil, and where possible keep weeds well in check by constant hoeing. Dig naphthalene, at the rate of 2 oz. to the square yard, thoroughly into the soil and water well. Or mix 1 part of Paris Green with 25 parts of bran, slightly moistened, and sprinkle the mixture very lightly over the surface on dry evenings.

**Mealy-Bug.**—Mealy-bugs attack chiefly vines, grapes, and figs under glass. They are so called because a white, downy material grows on the bodies of the female insects. *Treatment.*—If present in large numbers, fumigation with hydrocyanic gas is sometimes necessary, but usually a good spraying with nicotine and soap solution, and subsequently the application of a little methylated spirit to the mealy-looking patches where the females congregate will be sufficient to wipe them out.

**Mildew.**—Mildew is due to a fungus, and affects the buds, leaves and small shoots of plants in spring. They become covered with a whitish mould which, if neglected, does much to cripple the bush or tree. *Treatment.*—Mildew is a disease that requires immediate attention, for if it is neglected, it will spread rapidly from plant to plant. Dust with "flowers" of sulphur, and repeat the application in ten days' time, or spray with liver of sulphur, using  $\frac{1}{2}$  oz. to one gallon of water, or 1 oz. to three gallons of water for young and tender foliage. Where trees grown indoors are affected, attend to the ventilation of the house.

**Red Spider.**—This pest is encouraged by drought in the open, or by excessive heating and drying of the atmosphere of the greenhouse, and may be kept under by remedying these conditions. The red spider eats into the underside of the foliage and sucks at the sap, causing the leaves to turn yellow and later, if the attack is severe, whitish. *Treatment.*—Plants in the open that are attacked should be sprayed with paraffin emulsion or lime-sulphur, but this must be done early before the trees or bushes are badly damaged. On the

## SOME COMMON DISEASES AND PESTS

first discovery of red spider in the greenhouse, all affected leaves should be sponged with soapy water, and the house fumigated, see page 247.

**Scale.**—The tiny scale insects pierce the bark and suck the sap from the plants, attacking first the older wood. They do much injury to the wood and leaves of many trees and plants.

They infest the young shoots only after all the larger branches have been covered. Badly affected trees and bushes lose their leaves early in the season and rarely carry good flowers; the sucking of the sap soon drains their vitality. The males are in the form of small flies. The females look like little plates or scales—whence the name—fixed to the bark and sometimes the leaves. *Treatment.*—Scale is destroyed by scrubbing or by thorough spraying with strong soapy water in the proportion of 1 oz. of soap to 1 quart of water; with paraffin in the proportion of  $\frac{1}{4}$  gill to 1 gallon of water; with a lye of wood ashes or potash; with nicotine wash; or with fish oil. As much of the old wood as possible should be cut away. The solutions should be applied in winter and special attention should be given to the undersides of the branches.

**Slugworms.**—See Cherry and Pear Sawfly.

**Slugs.**—Slugs are always more numerous and destructive after long, wet, mild winters. They bury themselves in the ground or under leaves and other rubbish and come out at night to feed on young foliage. For prevention and treatment, see Snails. When found, a pinch of salt, on the head and back, is sufficient to kill a slug, or they may be gathered and dropped into salt water.

**Snails.**—Dust young growths over with a mixture of soot and lime to prevent the pests from devouring them. At night or early in the morning sprinkle lime thickly on the soil and repeat the process two or three days in succession, this will kill numerous snails; others may be trapped in orange skins, lettuce leaves or bran, of which they are very fond. Much may be done by diligent searching in the early morning or evening. A ring of cinders round choice plants will do a great deal to discourage the attentions of slugs and snails. There are several anti-slug and snail powders on the market; most are very effective. Do not allow rubbish to accumulate in odd places; keep the garden tidy. Encourage frogs and toads and insectivorous birds, such as the thrush,



## SOME COMMON DISEASES AND PESTS

which devour snails and slugs, and where feasible allow ducks to range over the land.

**"Spit."**—See Cuckoo Spit.

**Thrips.**—Thrips are most active in very dry weather. They are small, blackish-grey insects that infest and injure the flowers, leaves, and shoots, causing them to appear spotted, warped, and twisted out of place. The best remedy against thrips is the plentiful application of salt water, tobacco water, strong soapy water, or any of the insecticides that are sold for the purpose of destroying insect life.

**Winter Moth.**—See Caterpillars, page 251, also Grease Banding, page 247.

**Woodlice.**—Woodlice should be searched for every morning and destroyed by having boiling water poured over them. They may be trapped by means of small flower-pots filled with dry manure or old hay. Powdered borax sprinkled in infested places will also do much to keep down this pest. They congregate in rubbish, at the bottom of pots in a hot-bed and round the sides of wood edgings, fences, and stones.

**Woolly Aphis.**—See American Blight.



PETUNIA.

[C. W. Trager.



## GLOSSARY OF TERMS USED IN GARDENING

- Aeration.**—To admit fresh air into soil. Sweeten by means of digging, trenching, hoeing, etc.
- Alluvial Soil.**—Soil carried by the motion of water and deposited.
- Alpines.**—Pertaining to the Alps. Plants that grow in rocky situations with little subsoil.
- Annuals.**—Plants such as *Clarkia*, *Mignonette*, etc., which live for one year only. Fresh seed must be sown annually.
- Aquatics.**—Plants that grow in water.
- Artificial Manures.**—Not natural. Food which has been specially prepared to promote plant life.
- "Ball."**—Soil surrounding roots of a plant when lifted. The bigger the "ball" the less likely are the roots to be disturbed, and thus the quicker the plant will settle down in its new position.
- Bast.**—The inner rind of lime trees, sometimes used for tying up.
- Bedding Out.**—Planting out in positions for flowering.
- Bell Glass.**—A bell-shaped glass used for protecting young, tender seedlings.
- Biennial.**—Lasting two years only. Plants which grow the first year, flower and die the second.
- Blanching.**—Making white or taking colour out of certain vegetables by means of earthing up, etc.
- Bleeding.**—Loss of sap through a wound in the bark.
- Bog Plants.**—Plants which thrive in marshy, boggy situations.
- Bordeaux Mixture.**—A fungicide that is useful for spraying fruit trees, etc.
- Bottom Heat.**—Heat applied from below when rearing plants.
- Bract.**—A leafy appendage to flower or stalk.
- Budding.**—Propagation by means of inserting the dormant bud of one plant in a shoot or stem of another.
- Buds.**—The first shoot of a plant. Buds are of three kinds; those containing the flower, those containing the leaves and those containing flower and leaves.

## GLOSSARY OF GARDENING TERMS

- Bulb.**—Round, fleshy root of various plants, i.e. hyacinth, or tulip. These should not be confused with corms, which are more solid in form than true bulbs; i.e. montbretia, crocus, gladiolus, etc.
- Bubils.**—Small bulbs—offsets from parent bulb—used for propagating purposes.
- Calcareous.**—Having the nature and properties of chalk or lime—containing chalk or lime.
- Callus.**—A sort of hard tissue which forms at the base of a cutting before it commences to send forth shoots.
- Calyx.**—The outer covering of a flower.
- Catch Crops.**—Quickly-raised crops such as radishes, lettuces, etc., grown between the lifting of one main crop and the planting of another.
- Chlorophyll.**—Green colouring matter in plants.
- Climbers.**—Plants that send out long, straggly shoots and grow to a great height if supported on walls, trellis, arches, etc.
- “Close.”**—Applied to atmospheric conditions when little ventilation is given.
- Cloche.**—See Bell Glass.
- Cloves.**—Small bulbs of garlic, onion, shallot, etc.
- Conifer.**—Plant which bears cones.
- Compost.**—A mixture of soils. More especially the mixture used when potting plants or sowing seed indoors.
- Corm.**—See under Bulb.
- Cordon.**—Form in which certain fruit trees are grown—denotes single stem.
- Cortex.**—The outer portion of stem or root—bark.
- Cotyledons.**—The first leaves of seedlings.
- Creepér.**—See Climbers. Creepers are more especially those plants which creep over the ground.
- Crocks.**—Broken pieces of pot, china, etc., usually placed at the bottom of pots for draining purposes.
- Cropping.**—See Intercropping and Rotation of Crops.
- Cross-breeding.**—Introducing new varieties by means of crossing one established variety with another.
- Crown.**—Junction of root and stem. Head of foliage, etc.
- Crown Bud.**—The highest or topmost flower bud.
- Cruciferous.**—Plants with four petals such as cress, mustard, etc., arranged like a Maltese cross.
- Cut-backs.**—Trees or shrubs that have been once pruned.

## GLOSSARY OF GARDENING TERMS

- Cuttings.**—Slips or young portions of plants used for propagation purposes.
- Damping-down.**—Method of keeping atmosphere damp by means of moistening walls, floor, etc.
- Damping-off.**—When the stems of seedlings decay at base—due to over-crowding, over-watering, insufficient air, etc.
- Decayed Manure.**—Manure that has been allowed to rot for some considerable time.
- Deciduous.**—Trees and shrubs that lose their leaves periodically.
- Dibber.**—A pointed instrument used for making holes in the ground when planting certain seeds or seedlings. Not recommended by good gardeners.
- Dibbling.**—Planting with a dibber.
- Disbudding.**—Picking off superfluous buds so as to strengthen main bud.
- Division.**—Propagating by means of dividing the roots of plants.
- Dot Plants.**—Taller plants, used here and there among dwarfer kinds, to break the flatness.
- Dressing.**—An application of manure or fertiliser to the ground.
- Drill.**—A shallow furrow for sowing seeds in.
- Drying-off.**—Ceasing to water plants, during season when they are dormant.
- Dusting.**—Sprinkling with fine powder.
- Earthing-up.**—Drawing mould up round the base of certain plants for blanching purposes, etc.
- Espalier.**—A row of trees trained to a frame or a single-fruit tree thus trained; the frame or lattice work used for the training.
- Evergreen.**—Shrubs and trees, etc., which retain their foliage all-the-year round.
- Eye.**—The dormant bud of a plant.
- Feeding.**—Applying fertiliser, liquid-manure, etc., to growing plants.
- Fertilisation.**—Union of male and female flowers. See pollination.
- Flagging Plants.**—Following transplanting certain plants droop through exposure to hot sun or from want of water.
- Flore Pleno.**—With double flowers.

## GLOSSARY OF GARDENING TERMS

- Forcing.**—Encouraging, by means of heat, etc., plants to flower or fruit earlier than their normal time.
- Friable Soil.**—Soil which is easy to work.
- Fumigation.**—Cleansing by means of fumes of gas, smoke, etc.
- Germination of Seed.**—The first stage of growth in a seed.
- Graft.**—A young shoot of one plant specially prepared for insertion in the branch of another. See Grafting.
- Grafting.**—The operation of fixing a shoot, or part of one plant, on to another, so that a union takes place and they grow together.
- Green Fly.**—See article on Diseases and Pests, page 253.
- Guano.**—A name given to the dung of sea-fowl and other birds. It is used as manure.
- Gumming.**—The ejection of a thick gumming substance after pruning.
- Habitat.**—The natural locality of a plant.
- Half-hardy.**—Plants that require a certain amount of protection.
- Half-standards.**—Rose or fruit trees between a standard and bush in form; a small standard.
- Hardening-off.**—Gradual reduction of protection, heat etc., and the preparation of plants for planting out in the open.
- Hardy.**—Plants that thrive in the open and need no protection in winter.
- Hand-light.**—A small frame used for protecting tender plants.
- Haulm.**—The straw of beans or peas. Straw used for tying up, etc.
- Heel.**—Cuttings taken with "heel" are cuttings with a piece of parent plant attached at the base.
- Heeling-in.**—Planting roses, shrubs, etc., temporarily until they can be planted properly in their permanent positions.
- Herbaceous.**—Non-shrubby perennials, etc., the stems and foliage of which die back in winter.
- Hoeing.**—Stirring the surface of soil with a hoe.
- Hotbed.**—A specially prepared bed of manure and soil under a frame.
- Humus.**—Decayed vegetable mould.
- Hybrid.**—A plant produced by the crossing of two species.
- Inarching.**—A process in which two living branches are grafted together. See Grafting.

## GLOSSARY OF GARDENING TERMS

- Insecticide.**—A solution or material specially prepared for the destruction of insects. Usually applied by means of spraying or dusting.
- Inter-cropping.**—See Catch Crops, page 258.
- Lateral.**—A shoot growing out sideways from main stem.
- Layering.**—A process in which certain plants are propagated by pegging down shoots until they root.
- Leaf-mould.**—Mould composed of decayed leaves.
- Leggy Plants.**—Plants which have become over-tall and weak.
- Lichen.**—A sort of moss or growth on tree trunks, damp walls, etc. Usually greyish-green or yellow in colour.
- Ligatures.**—Band of bass, twine, etc., securing plants to their stakes.
- Maiden Trees.**—Fruit trees, roses, etc., that have been budded or grafted only one year.
- Marl.**—A rich calcareous soil, consisting of carbonate of lime and clay and used as a fertiliser.
- Monocotyledons.**—Plants that have only one seed leaf.
- Monœcious.**—Plants bearing male and female flowers on the same plant.
- Mulching.**—Placing a layer of manure, etc., on the surface round plants.
- Mycelium.**—Spawn of mushrooms and similar fungi.
- Naturalising.**—Planting out bulbs, etc., in grass or woodland so as to have the appearance of growing in their natural surroundings.
- Non-calcareous.**—Containing no chalk or limestone.
- Offsets.**—Bulbils or shoots easily detached from the parent plant and propagated.
- Panicle.**—Elongated spray of flowers.
- Peat.**—A substance consisting of decayed vegetable matter, roots, fibre, etc.
- Pegging Down.**—B ending down young shoots of carnations and other plants and fixing them in the ground so that they may root.
- Perennials.**—Plants which last more than two years; they die down annually, but spring up again the following year.
- Petiole.**—A leaf-stalk; a foot-stalk of a leaf next the stem.
- Pinching-back.**—Pinching out the centre of young shoots of plants to make them bushy instead of tall.
- Pipings.**—Young shoots of pinks prepared as cuttings.
- Plunging.**—Burying a pot up to its rim in earth, ashes, etc.



## GLOSSARY OF GARDENING TERMS

- Plumule.**—The first bud or sign of growth from a seed.
- Pointing.**—Lightly forking over the surface of the soil.
- Pollination.**—The act of transferring pollen from the anthers to the stigma of flowers.
- Pompom.**—A flower that is button-like in appearance.
- Porous.**—Loose so that air and water easily penetrate.
- Pricking-off.**—Transplanting seedlings from the seed-box to other boxes or to pots.
- Propagation.**—The act of increasing plants.
- Pruning.**—Cutting out old and dead wood and cutting back weak, straggly shoots, etc.
- Pseudo-bulb.**—Fleshy bulb-like roots which are not true bulbs.
- Puddling.**—The act of rendering impervious to water by means of clay. Also dipping the roots of certain vegetables in a mixture of clay, lime, soot, etc., before planting.
- Pyramid.**—Form in which certain fruit trees are grown. Shaped like a pyramid.
- Radicle.**—Pertaining to the root. Part of a seed from which the root forms.
- Raffia.**—Strong, straw-like substance used for tying up plants.
- Resting Period.**—The period during which plants lie dormant.
- Retarding.**—Holding plants back from growing or flowering. Usually by means of placing them in a cool temperature.
- Rhizome.**—A thick, woody, stem-like root.
- Ridging.**—Throwing the soil up into ridges.
- Rock Plants.**—See Alpines, page 257.
- Root Crops.**—Crops which grow below the ground, e.g. carrots, turnips, potatoes, etc.
- Root Pruning.**—The operation of cutting off large root branches in fruit trees to induce fruit production instead of foliage.
- "Rose."**—The perforated end of a watercan which causes the water to flow forth in form of a spray.
- Rotation of Crops.**—System of arranging that different kinds of crops follow each other in a certain cycle on same piece of land.
- Runners.**—Shoots sent out from the base of certain plants which root and so aid propagation.
- Sappy Growth.**—Weak, soft growth caused by a loose, over-rich or too-moist condition of the soil.

## GLOSSARY OF GARDENING TERMS

- Scape.**—A stem growing direct from the root and bearing the flower without leaves.
- Scion.**—A young shoot of a tree, a cutting of a twig used for grafting on another stock.
- Second Crown Bud.**—The next bud to form on a new shoot after removal of the crown bud.
- Seedlings.**—Young plants raised from seed.
- Self.**—Flower of one shade.
- Self-fertile.**—Fruits that can be fertilised by their own pollen.
- Set.**—The flowers are said to have set when the fruit forms afterwards.
- Sets.**—Used in connection with certain small bulbs and tubers. Onion sets are small bulbs raised from seed and seed potatoes are described as sets.
- Spawn.**—See Mycelium. Also used in connection with offsets of the gladiola.
- Spit.**—A spade's depth of soil.
- Spore.**—The part of flowerless plants, ferns, etc, which performs the functions of the seed.
- Sport.**—An unusual variation from the "type" plant.
- Spraying.**—The application of liquids by means of a sprayer.
- Spur.**—A short shoot of a plant.
- Stamen.**—The organ of a flower which furnishes the pollen or fecundating dust.
- Standard.**—A rose, fruit or other tree with a clear, straight stem.
- Starting.**—Putting plants into such a position that they will start into growth.
- Stock.**—The stem of a common plant on to which is grafted or budded another variety.
- Stopping.**—See under Pinching-back, page 261.
- Striking.**—The insertion of cuttings in soil.
- Subsoil.**—The underneath layer of soil.
- Succulents.**—Plants that are full of sap; cacti, for example.
- Sucker.**—A shoot from the roots of a plant, that can be used for propagation purposes.
- Tap-root.**—The main root of a plant descending straight down into the earth.
- Terminal Bud.**—The last flower bud which forms at the end of a side shoot.
- Thinning-out.**—When seeds are sown, the seedlings are invariably overcrowded and the superfluous plants must be pulled up to give the others room to grow.

## GLOSSARY OF GARDENING TERMS

**Top-dressing.**—A dressing of manure or fertiliser applied on the surface.

**Topiary Work.**—The trimming of shrubs, hedges, etc., to the form of animals and other objects.

**Transplanting.**—Taking up plants and moving them to another position.

**Trenching.**—Thorough digging of the soil.

**Tuber.**—A short, swollen part of an underground stem, as of a dahlia or potato.

**Tuberous-rooted.**—Having roots formed of tubers.

**Young Wood.**—The soft, green shoots of a plant.

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